



## **Psychosocial and Behavioural Correlates of HIV Risk Perception among Workers of Mukete Estates Limited, Meme Division, Southwest Region of Cameroon**

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### **Authors' contributions**

*This work was carried out in collaboration among all authors. Author EET conceived and designed the study, collected data, performed the statistical analysis and wrote the first draft of the manuscript. Authors SG and AJB critically reviewed and edited the manuscript. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Background:** The commercial agricultural sector of Cameroon is facing severe social and economic crisis due to the impact of HIV/AIDS. In spite of this situation, agricultural workers do not perceive HIV as a threat. Therefore, we conducted this study aimed at investigating the psychosocial and

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behavioural correlates of HIV risk perception among workers of Mukete Estates Limited (MEL), in the Southwest region of Cameroon.

**Methods:** A cross-sectional study was conducted in June 2015 among 208 estate workers selected using a cluster sampling technique. A questionnaire was administered to ascertain socio-demographic characteristics, behavioural and psychosocial characteristics, and perception of risk of contracting HIV using the Health Belief Model (HBM). Binomial logistic regression was computed to ascertain the correlates of risk perception using the Statistical Package for Social Sciences (SPSS) version 20 software program at the level 0.05.

**Results:** Up to 94.2% perceived that HIV/AIDS really exists and 66.7% perceived that a healthy looking person can be HIV positive (perceived susceptibility); 84.6% perceived that HIV/AIDS is a serious and deadly disease (perceived severity); 65.8% perceived that correct and consistent use of the condom can prevent sexual transmission of HIV/AIDS (perceived benefit); 74.1% perceived that they feel embarrassed to buy condoms (perceived barriers); 69.2% perceived that they could refuse sex with their partners if they refuse to use condoms (perceived self-efficacy); 96.1% reported having experienced sex, and of these, 49.0% reported having had multiple sequential sexual partners in the past one year, and 31.5% reported having multiple concurrent sexual partners during the period of this study. Those who had ever used the condom represented 65.0%, among them 23% used it always. Were at higher odds of perceiving themselves at risk of contracting HIV: Muslims [OR=2.844 (95% CI 1.213-6.666)], workers who perceived that HIV/AIDS really exist [OR=3.789 (95% CI 1.352-10.619)], workers who perceived that a healthy looking person can be HIV positive [OR=4.100 (95% CI 1.200-14.005)], workers who perceived that they have the confidence they could refuse sex with their partners if they refused to use condoms [OR=5.273 (95% CI 1.475-18.855)]. On the other hand, workers who perceived that they feel embarrassed to buy condoms were at lower odds of risk perception of contracting HIV/AIDS: [OR=0.296 (95% CI 0.112-0.780)].

**Conclusion:** Three components of the HBM with high significance (perceived susceptibility, perceived barriers and perceived self-efficacy), and religion should be considered in designing policies and intervention programmes geared towards increasing HIV risk perception among workers of MEL, Cameroon.

*Keywords: Behavioural and psychosocial correlates; HIV risk perception; Health Belief Model (HBM); agricultural workers; Cameroon.*

## 1. INTRODUCTION

The Acquired Immune Deficiency Syndrome (AIDS) remains a life-threatening condition without any cure [1]. Hence, only effective preventive measures can curb this pandemic, especially if these are adopted and maintained by workers, such as those of the agro-estates.

The commercial agricultural sector of Cameroon is facing severe social and economic crisis due to the impact of HIV/AIDS. This sector is vulnerable to HIV due to its high dependence on human labour. Protracted morbidity and mortality are costing the industry financially, economically, and socially (including loss of skilled and experienced labour) [2]. The sector's vulnerability to the epidemic thus stems largely from vulnerabilities faced by workers employed in commercial agriculture. Research has shown that vulnerability of workers in commercial agriculture is rooted in the nature of work, which

tends to be casual employment and largely based on migrant labour. In addition, poor living and working conditions on farms, coupled with limited access to health services and information about HIV increase vulnerability [2-5]. For agro-estates to remain viable businesses, it is necessary and urgent to approach the epidemic with the seriousness it deserves. This includes comprehensive prevention programmes and concerted mitigation strategies at company level.

Cameroon has one of the highest HIV/AIDS prevalence in the West and Central African sub-region of 4.3%, which translates to 610,000 inhabitants [6]. HIV/AIDS continues to ravage families and communities in sub-Saharan Africa (SSA) with those between the ages of 19 and 55 years being the hardest hit group. This age group coincides with the most productive group in Africa, especially populations in most of our agro-estates [3].

The location of Mukete Estates Limited (MEL) in the South West Region, the third highest HIV infected region of Cameroon demands serious attention [6]. There has been no mainstreaming of HIV/AIDS activities into programmes of MEL. Existing HIV/AIDS activities have not been properly coordinated, monitored and evaluated. There is limited collaborative research on the disease in MEL, making it difficult to attract substantial funding to undertake comprehensive interdisciplinary research/preventive work.

Personal HIV risk perception has been a topical issue over the years given its hypothesised association with the adoption of safe sexual behaviours [7,8]. However, no study has been carried out on agricultural workers in Cameroon, to ascertain the psychosocial and behavioural correlates of perception of risk of contracting HIV. Low personal HIV risk perception is very dangerous as it may fuel the spread of HIV infections, since farm workers may continue to lead risky sexual lives as they think that they are not at risk of contracting the virus [9].

### 1.1 The Health Belief Model (HBM)

Psychosocial theories of behaviour change, such as the Health Belief Model (HBM), the AIDS Risk Reduction Model (ARRM), the Trans-Theoretical Model (TTM), the Social Learning Theory (SLT) and the Theory of Reasoned Action (TRA), stress the pivotal role played by an individual's perception of the risk of a given problem in the process of human behaviour change [10-13].

These theories underscore that a person's recognition of his/her susceptibility to any problem or disease, including HIV, is vital in prompting the person to taking actions that may reduce his/her vulnerability. In other words, the actions that an individual takes to protect himself/herself from any disease, including HIV, will to a large extent depend on his/her perception of the risk of the disease. In the context of HIV, an individual's perception of the risk of HIV infection often affects a number of factors such as whether or not he/she has an HIV test or uses condoms during sexual acts.

The HBM identifies the perceived susceptibility, perceived severity, perceived benefits, perceived self-efficacy and perceived barriers as predictors of safer sexual activity [13]. The HBM postulates that health-seeking behaviour (preventing HIV/AIDS by

consistently using condoms), is influenced by a person's perception of the threats posed by the health problem (the perceived risk of contracting HIV/AIDS), and the value associated with the actions aimed at reducing the threat (consistent condom use to prevent HIV).

Based on the assumptions of the HBM [14,15], it could be concluded that without agricultural workers' perceptions of HIV/AIDS being a threat, there could be no resultant preventative actions (using condoms consistently) against HIV/AIDS. Therefore, the perception of risk of contracting HIV/AIDS is assumed to be the immediate antecedent of consistent use of condoms to prevent HIV/AIDS. It is therefore, hypothesised that the higher an agricultural worker's perception of contracting HIV/AIDS, the higher his/her chances of implementing preventive measures.

In terms of the HBM's root in value-expectancy theory, attitudes are developed and modified based on assessments about beliefs and values. Sensitivity to risk depends on factors other than knowledge of infection mechanisms, it also depends on behaviours, such as an individual's awareness of HIV/AIDS (its prevalence, the severity of its symptoms, its lethality) and the perceptions of their general health status [16]. Therefore, sensitivity to risk is explained by the components of the HBM. This study was therefore conducted to investigate the psychosocial and behavioural correlates of HIV risk perception among workers of Mukete Estates Limited (MEL) in Meme Division, Southwest region of Cameroon.

## 2. METHODS

### 2.1 Design

A quantitative cross-sectional design was adopted for this study, and conducted in June 2015.

### 2.2 Study Setting

The study was conducted at farms of Mukete Estates Limited (MEL) in Meme Division in the Southwest region of Cameroon. Operating Since 1910, MEL has been producing cocoa, rubber and palm oil over several decades. The company's drive has been to run the most efficient and cost effective operation in the area

in whatever crop it grows in a bid to relentlessly boost shareholder value and steadily improve the living conditions of its workers while contributing in a significant manner to the socio-economic development of its neighbouring communities. It has four estates in three subdivisions of Meme Division, in the Southwest region of Cameroon, covering a considerable expanse of land: - *Komba Dikwi Rubber Estate in Konye Subdivision, Nkangmudikum Rubber Estate in Kumba I Subdivision, Oil Palm Estate in Kumba I Subdivision and Bai Many Oil Palm Estate in Mbonge Subdivision*. It is an agro-industrial establishment with a labour force of approximately 500, manning the four estates with palm oil and Rubber as main cash crops.

Kumba, where the headquarters is located, is an urban municipal area in the Southwest region of Cameroon, with a total population of approximately 166,000 inhabitants (51.2% males and 48.8% females) [17]. The Southwest region has an HIV/AIDS prevalence of 5.7%, which is above the Cameroon national prevalence of 4.3% [6].

### 2.3 Study Population

The population for this study comprised male and female workers employed on Mukete Estates, either on a permanent or seasonal basis numbering around five hundred individuals.

### 2.4 Sampling Method

All farms of MEL were selected purposively to participate in this study. Cluster sampling approach was used whereby for each participating farm, a list of all employees was obtained along with their type of work. The researcher used proportionate sampling to select the number of employees from each site in order to make up the pre-determined sample size of 208. No data on the perception of risk of contracting HIV among agro-estate workers was available. To detect a 10% difference in the perception of risk with 95% confidence interval (CI), and 80% power, a sample size of 200 was needed. With the addition of 4% nonresponse rate, the final sample size was 208. Change Agents who are farm workers trained by the HIV/AIDS Prevention Research Network, Cameroon (HIVPREC) partners, as peer educators, explained to the workers what the survey was all about.

### 2.5 Questionnaire Development and Data Collection

Pre-tested structured questionnaires were used to collect data from respondents. The questionnaires comprised two sections. Section one assessed the socio-demographic characteristics and section two assessed the individual perceptions, structured according to the HBM, of MEL workers. The questionnaires were administered by trained facilitators of HIVPREC, due to the low levels of literacy among the respondents. The training focused on understanding the meaning of each question, the need to obtain informed consent, keeping confidentiality of the information they gathered, and reliability of data as well as the techniques of presenting the questions to the respondents in an understandable manner. During data collection, frequent checkups were made by the HIVPREC facilitators to ensure the completeness and consistency of the data. The returned questionnaires were checked for completeness by the principal author.

The questionnaires were developed after review of relevant literature, and adapted partly from the HIV/AIDS Behavioral Surveillance Survey [18], and other published journal articles [7,19,20]. The questionnaires were slightly modified for clarity of terms and order of questions.

### 2.6 Data Analysis

Binomial logistic regression was computed to ascertain the correlates of HIV risk perception using the Statistical Package for Social Sciences (SPSS) version 20 software program at the level 0.05.

### 2.7 Ethical Considerations

Permission to conduct the current research was obtained from research and ethics committee of the HIV/AIDS Prevention Research Network, Cameroon (HIVPREC) and from the Management of MEL. Participants were given verbal and written information about the study and signed an informed consent form before data collection. No personal information or identifier was retained within the questionnaires. All respondents participated on a voluntary basis and no financial incentives were provided.

## 2.8 Measures

### **2.8.1 Outcome (dependent variable): perception of risk of contracting HIV**

The outcome variable of interest for this study is perception of risk of contracting HIV as reported by workers of MEL. This was measured with the following question: 'How at risk of contracting HIV are you?' The response options were '1=not at risk (reference category)' and '2=at risk'.

### **2.8.2 Explanatory (independent) variables**

#### *2.8.2.1 Perceived susceptibility to HIV*

This was measured based on the level of agreement with the following two statements, each considered separately: 'HIV/AIDS really exists,' and 'A healthy looking person can be HIV positive'.

#### *2.8.2.2 Perceived severity of HIV/AIDS*

This measure was based on the degree of agreement with the following two statements: 'HIV/AIDS is a serious and deadly disease', and 'Anti-Retroviral Therapy (ART) can cure HIV/AIDS'.

#### *2.8.2.3 Perceived benefit of condom use*

This measure was based on the degree of agreement with the following statement: 'Correct and consistent use of the condom during sexual intercourse could prevent transmission of HIV'.

#### *2.8.2.4 Perceived condom use self-efficacy*

This measure was based on the degree of agreement with the following two statements: 'I feel confident that I can convince my partner(s) to use the condom during sexual intercourse' and 'I have the confidence that I could refuse sex with my partner if he/she refuses to use the condom'.

#### *2.8.2.5 Perceived barriers to condom use*

This measure was based on the degree of agreement with the following seven statements: 'Condom use makes sex less enjoyable for both partners,' 'I lack knowledge on correct condom usage', 'Condoms are not readily available', 'Condom makes partner feel untrusted', 'I feel embarrassed to buy condoms', 'A condom can burst and land up in the woman's stomach during sex', and 'I feel embarrassed to ask my partner to use the condom during sex'.

The response options for all the perception variables were categorized into '2=agree' and '1=disagree', and were coded in like manner, with 'disagree' coded as the index category.

#### *2.8.2.6 Socio-demographic variables*

The following socio-demographic variables were included in the study: age, categorized into five groups (15-24, 25-35, 36-45, 46-55 and more than 55 years), marital status, categorized into two groups (single and married), religious affiliation, categorized into Christians and Muslims, gender, categorized into male and female, and level of education, categorized into primary (index category), secondary and tertiary education.

#### *2.8.2.7 Sexual experience*

This was measured with the question: Have you ever had sexual intercourse with a male/female partner? With '1=yes' or '0=no (reference category)' as response options.

#### *2.8.2.8 Regularity of condom use*

The question asked respondents who were sexually active: "How often do you use condom during sexual intercourse?" The response options were categorized into '1=always' and '0=others'.

#### *2.8.2.9 Condom use during first sexual encounter*

This was measured with the following question: Did you use a condom the first time you had sexual intercourse with your partner? The response options were '1=yes' and '0=no (index category)'.

#### *2.8.2.10 Condom use during last sexual encounter*

This was measured with the following question: Did you use a condom the last time you had sexual intercourse with your partner? The response options were '1=yes' and '0=no (index category)'.

#### *2.8.2.11 Ever used a condom use during sexual intercourse*

This was measured with the following question: Have you ever used a condom during sexual intercourse with your partner? The response options were '1=yes' and '0=no (index category)'.

### 2.8.2.12 Number of sexual partners

This was measured with the following two questions: 'How many sexual partners have you had in the past one year?' and 'how many concurrent sexual partners do you have at present?' The response options were '1=one or less (reference category)' and '2=more than one'.

## 2.9 Method of Analysis

Binomial logistic regression was performed using SPSS version 20 to examine the psychosocial and behavioural correlates of perception of risk of contracting HIV using the HBM as framework. Binomial logistic regression predicts the probability that an observation falls into one of two categories of a dichotomous dependent variable based on one or more independent variables that can be either continuous or categorical.

The procedure gives rise to estimates of odds of a certain event occurring (perception of risk of contracting HIV), given a set of explanatory variables (psychosocial and behavioural factors). All these assumptions were fulfilled in this study, thus justifying the use of binomial logistic regression to understand the psychosocial and behavioural correlates of perception of risk of contracting HIV/AIDS among MEL workers, Cameroon [21].

To assess the relative importance of the behavioural variables and the main components of the HBM (the psychosocial variables), we built nine models predicting perception of risk of contracting HIV/AIDS. These variables were entered into the model in a forward stepwise fashion to identify the net contribution of specific sets of variables while adjusting for the simultaneous effects of other sets of variables in the model. To assess the predictive utility of each component of the HBM as a whole, that is how individuals with various combinations of health beliefs are more or less likely to perceive the risk of contracting HIV/AIDS, each component of the HBM was entered into the model one at a time. The 95% confidence intervals were used.

## 3. RESULTS

### 3.1 Descriptive

Of the 208 respondents in this study, 138 (66.3%) were males and 70 (33.7%) were females. The majority, 103 (49.5%) were

between the ages of 25 and 35 years, with the majority, 133 (63.9%) being married. One hundred and seventy (81.7%) were Christians and the majority, 121 (58.2%) had secondary education (Table 1).

### 3.1.1 Psychosocial factors

As for the components of the HBM, the perception that HIV/AIDS really exists and that a healthy looking person can be HIV positive (perceived susceptibility) were quite high, 94.2% and 66.7% respectively. Majority, 84.6% of the respondents perceived that HIV/AIDS is a serious and deadly disease, and 75.0% perceived that ART cannot cure HIV/AIDS (perceived severity). For perceived benefits, only 65.8% of the respondents perceived that correct and consistent use of the condom can prevent sexual transmission of HIV/AIDS. Similarly, only 60.1% perceived that they can convince their partners to use the condom during sexual intercourse, and only 69.2% perceived that they could refuse sex with their partners if they refuse to use condoms (perceived self-efficacy). However, a considerable proportion of the respondents, 79.8% perceived that the condom makes sex less enjoyable for both partners; a great majority, 82.7% perceived that condom makes partner feel untrusted; a considerable majority, 61.5% perceived that they lack knowledge on the correct condom usage; 47.1% perceived that the condom is not readily available; a great majority, 74.1% perceived that they feel embarrassed to buy condoms; a considerable majority, 56.3% perceived that they feel embarrassed to ask their partners to use condoms during sex, and 51.7% perceived that a condom can burst during sex and land in the stomach of the female partner (perceived barriers). With regard to perception of risk of contracting HIV, the majority, 55.3% perceived that they are not at risk (Table 2).

### 3.1.2 Behavioural factors

With regard to sexual behaviours, the majority, 96.1% reported having experienced sex, and of these, 49.0% reported having had multiple sequential sexual partners in the last one year before this study, and 31.5% reported having multiple concurrent sexual partners during the period of this study. The proportion of the sexually active Mukete Estates workers who reported having ever used the condom was high, 65.0%, and the proportion who reported always using the condom was low, 23.0% (Table 2).

**Table 1. Socio-demographic characteristics of workers of MEL, Kumba, Cameroon (n=208)**

Characteristics	Frequency	Percentage
<b>Age group</b>		
15-24	13	6.3
25-35	103	49.5
36-45	69	33.1
46-55	13	6.3
>55	10	4.8
<b>Gender</b>		
Male	138	66.3
Female	70	33.7
<b>Marital status</b>		
Single	75	36.1
Married	133	63.9
<b>Religious affiliation</b>		
Christian	170	81.7
Muslim	38	18.3
<b>Academic level</b>		
Primary	48	23.1
Secondary	121	58.2
Tertiary	39	18.7

**Table 2. Psychosocial and behavioural factors (descriptive statistics)**

Components of the HBM and behavioural factors	Frequency	Percentage
<b>Perceived susceptibility to HIV/AIDS</b>		
<i>HIV/AIDS really exists</i>		
Agree	196	94.2
Disagree	12	5.8
<i>A healthy looking man can be HIV positive</i>		
Agree	138	66.3
Disagree	70	33.7
<b>Perceived severity of HIV/AIDS</b>		
<i>HIV/AIDS is a serious and deadly disease</i>		
Agree	176	84.6
Disagree	32	15.4
<i>Anti-Retroviral Therapy (ART) can cure HIV/AIDS</i>		
Agree	52	25.0
Disagree	156	75.0
<b>Perception of risk of contracting HIV</b>		
<i>How at risk of contracting HIV are you?</i>		
Not at risk	115	55.3
At risk	93	44.7
<b>Perceived benefit of condom use</b>		
<i>Correct and consistent female condom use can prevent HIV/AIDS</i>		
Agree	137	65.8
Disagree	71	34.2
<b>Perceived barriers to condom use</b>		
<i>Condom makes sex less enjoyable for both partners</i>		
Agree		
Disagree	166	79.8
	42	20.2
<i>Condom use makes partner feel untrusted</i>		

<b>Components of the HBM and behavioural factors</b>	<b>Frequency</b>	<b>Percentage</b>
Agree	172	82.7
Disagree	36	17.3
<b><i>I lack knowledge on correct condom usage</i></b>		
Agree	128	61.5
Disagree	80	38.5
<b><i>Condoms are readily available</i></b>		
Agree	110	52.9
Disagree	98	47.1
<b><i>I feel embarrassed to buy condom</i></b>		
Agree	154	74.1
Disagree	54	25.9
<b><i>A condom can burst and land in the woman's stomach</i></b>		
Agree	107	51.7
Disagree	101	48.3
<b><i>I feel embarrassed to ask my partner to use a condom</i></b>		
Agree	117	56.3
Disagree	91	43.7
<b>Perceived condom use self-efficacy</b>		
<b><i>I feel confident that I can convince my partner(s) to use the female condom during sexual intercourse.</i></b>		
Agree	125	60.1
Disagree	83	39.9
<b><i>I have confidence that I could refuse sex with my partner if she/he refuses to use a condom</i></b>		
Agree	144	69.2
Disagree	64	30.8
<b>Sexual behaviours</b>		
<b><i>Have you ever had sexual intercourse with a male/female partner?</i></b>		
Yes	200	96.1
No	08	3.9
<b><i>Have you ever used a condom?</i></b>		
Yes	130	65.0
No	70	35.0
<b><i>How often do you use a condom during sex?</i></b>		
Always	46	23.0
Seldom	84	42.0
Never	70	35.0
<b><i>Did you use a condom the first time you had sex?</i></b>		
Yes	96	48.0
No	104	52.0
<b><i>Did you use a condom the last time you had sex?</i></b>		
Yes	118	59.0
No	82	41.0
<b>Number of sexual partners</b>		
<b><i>How many sexual partners have you had in the past one year?</i></b>		
One or less	102	51.0
More than one	98	49.0
<b><i>How many concurrent sexual partners do you have at present?</i></b>		
One or less	137	68.5
More than one	63	31.5

### 3.2 Psychosocial and Behavioural Correlates of Perception of Risk of Contracting HIV/AIDS

Table 3 presents the summary and classification of the binomial logistic regression model. The model explained about 22% (Nagelkerke  $R^2$ ) of the variance in risk perception and correctly classified more than 68% of cases (not shown in Table 3). The logistic regression model (Chi-square) was not statistically significant ( $p=0.138$ ), denoting inadequate explanatory power of the variables used in explaining the dependent variable (perception of risk of contracting HIV/AIDS) (not shown in Table 3).

Among the socio-demographic factors, religion was found to significantly correlate with perception of risk of contracting HIV among MEL workers, with Muslims being at higher odds of perceiving themselves at risk of contracting HIV than Christians [OR=2.844 (95% CI 1.213-6.666)] (Table 3).

Among the components of the HBM (the psychosocial factors), workers who perceived that HIV/AIDS really exists and that a healthy looking person can be HIV positive (perceived susceptibility), were at higher odds of perception of risk of contracting HIV/AIDS [OR=3.789 (95% CI 1.352-10.619)] and [OR=4.100 (95% CI 1.200-14.005)] respectively; workers who perceived that they feel embarrassed to buy condoms (perceived barrier) were at lower odds of perception of risk of contracting HIV/AIDS: [OR=0.296 (95% CI 0.112-0.780)]; workers who perceived that they have the confidence they could refuse sex with their partners if they refused to use condoms (perceived self-efficacy), were associated with higher odds of perception of risk of contracting HIV/AIDS: [OR=5.273 (95% CI 1.475-18.855)].

On the contrary, workers who perceived that ART can cure HIV/AIDS (perceived severity) were at higher odds of perception of risk of contracting HIV/AIDS: [OR=2.298 (95% CI 1.002-5.270)]. In the same vein, workers who perceived that they have the confidence that they can convince their partners to use condoms during sex (perceived self-efficacy), were at lower odds of perception of risk of contracting HIV/AIDS: [OR=0.138 (95% CI 0.033-0.573)].

## 4. DISCUSSION

The socio-psychological literature on health-related behaviours emphasises the perception of

being at risk of an infection as one of the necessary conditions for behavioural change. Moreover, the degree of perceived risk seems to affect individuals' actual control in adopting preventive measures [22]. Sensitivity to risk depends on factors other than knowledge of infection mechanisms; it also depends on behaviour, such as individual awareness of the illness (its prevalence, the severity of its symptoms, its lethality) and the perception of the general health status [16].

Rosenstock (1974) who developed the HBM suggested that preventative action is more likely among those who feel vulnerable to a disease [13]. This suggests that people have to perceive themselves to be at risk of infection in order to take actions to practise safer sexual behaviour such as fidelity and condom use.

In this study, the 55.3% of workers who did not perceive themselves to be at risk of contracting HIV/AIDS, might not be motivated to take preventive measures (consistent condom use) against HIV/AIDS. One explanation for low perceived HIV/AIDS risk might be that workers may exhibit optimistic bias, tending to underestimate risks in general due to feelings of invulnerability. Additionally, HIV/AIDS is a highly stigmatised disease [23,24]; acknowledging one's own risk implies putting oneself at risk of being stigmatised. Thus workers might avoid self-disclosure, by downplaying their own personal risk, leading to further low risk perceptions [25].

In this study, perceived susceptibility to HIV/AIDS was found to be a significant correlate of perception of risk of contracting HIV/AIDS (Table 3). Individuals who deny the presence of HIV/AIDS in their community do not perceive themselves to be vulnerable to the disease. Although only 5.8% of the workers denied the existence of HIV/AIDS and 33.3% denied that a healthy looking person can be HIV positive, such individuals might perceive themselves as not being at risk of HIV/AIDS. These findings emphasise the necessity of strategies to increase the perceived susceptibility to HIV/AIDS, among agricultural workers in Cameroon.

Perceived barriers refer to one's belief in the tangible and psychological costs of the advised behaviours against a condition or problem [10,26]. There could be several barriers that affect agricultural workers' decisions to take particular actions against a problem or condition.

**Table 3. Odds ratios (OR) of perception of risk of contracting HIV/AIDS from the logistic regression models**

<b>Effect</b>	<b>Odds ratios (OR)</b>	<b>Confidence interval (CI)</b>	<b>Wald</b>	<b>Sig.</b>
<b>Perceived susceptibility</b>				
HIV/AIDS really exists	3.789	(1.352-10.619)	6.418	<b>0.011</b>
A healthy looking person can be HIV positive	4.100	(1.200-14.005)	5.069	<b>0.024</b>
<b>Perceived severity</b>				
HIV/AIDS is a serious and deadly disease	1.952	(0.490-7.781)	0.899	0.343
ART can cure HIV/AIDS	2.298	(1.002-5.270)	3.857	<b>0.05</b>
<b>Perceived benefit of condom use</b>				
Correct and consistent use of the female condom can prevent the sexual transmission of HIV	1.136	(0.388-3.325)	0.054	0.817
<b>Perceived barriers to condom use</b>				
Condoms are readily available	0.317	(0.069-1.462)	2.170	0.141
I lack knowledge on correct condom usage	2.756	(0.797-9.530)	2.564	0.109
Condom use makes partner feel untrusted	0.501	(0.156-1.613)	1.343	0.247
Condom use makes sex less enjoyable	1.422	(0.554-3.648)	0.535	0.464
A condom can burst and land inside a woman's stomach	1.207	(0.224-6.512)	0.048	0.827
I feel embarrassed to ask my partner to use a condom	0.741	(0.184-2.987)	0.178	0.673
I feel embarrassed to buy condoms	0.296	(0.112-0.780)	6.064	<b>0.014</b>
<b>Perceived condom use self-efficacy</b>				
I feel confident that I can convince my partner(s) to use a condom during sexual intercourse	0.138	(0.033-0.573)	7.444	<b>0.006</b>
I have confidence that I could refuse sex with my partner if he/she refuses condom	5.273	(1.475-18.855)	6.541	<b>0.011</b>
Number of sexual partners in past one year	1.576	(0.558-4.453)	0.737	0.391
Number of concurrent partners at present	1.116	(0.362-3.753)	0.066	0.797
Condom use during first sex	0.638	(0.261-1.563)	0.966	0.326
Condom use during last sex	0.471	(0.166-1.334)	2.009	0.156
Ever used condoms during sex	1.019	(0.351-2.958)	0.001	0.972
Consistent condom use	0.718	(0.255-2.026)	0.391	0.532
<b>Socio-demographic variables</b>				
Age	1.226	(0.755-1.991)	0.676	0.411
Sex	0.564	(0.241-1.324)	1.730	0.188
Marital status	0.845	(0.357-2.001)	0.146	0.702
Level of education	1.018	(0.543-1.907)	0.003	0.957
Religion	2.844	(1.213-6.666)	5.783	<b>0.016</b>

They include phobic reactions, physical as well as psychological barriers, accessibility factors, possible blocks or hindrances to engage in preventive behaviours, including such factors as cost, inconveniences and unpleasantness [27,28].

In this study, perceived barriers to condom use, in terms of feeling of embarrassment in buying condoms, was also a significant correlate of perception of risk of contracting HIV among farm workers of MEL (Table 3).

Receptiveness to condom use is plagued by barriers including embarrassment or timidity to

obtain condoms from sources that require person-to-person contact [29]. It is only when workers realise that they have the capacity to deal with these barriers, that they could be able to take the necessary actions.

Perceived condom use self-efficacy, is the strength of an individual's belief in his/her own ability to respond to novel or difficult situations and to deal with any associated obstacles or setbacks. It is one's ability to successfully take action [26]. One should feel that he/she is capable of taking the necessary action correctly because it is that confidence that would motivate one to initiate and sustain the action [10].

In this study, perceived self-efficacy in terms of perceived confidence to refuse sex with partners if they refuse to use condoms, was found to be a significant correlate of HIV risk perception. This finding is in line with the expectations proposed by the HBM [14,15]. If one does not perceive him/herself to be at risk of contracting HIV/AIDS, there would be no need to negotiate condom use or refuse sex without condom use. According to the HBM, agricultural workers who perceive themselves to be susceptible to HIV/AIDS need to have the confidence that they can use condoms, before they would be able to use them correctly and consistently to prevent HIV/AIDS. Agricultural workers with low condom use self-efficacy might not use condoms consistently during sexual intercourse to prevent HIV/AIDS.

Whether or not formal sexuality education programmes are offered at Mukete agro-estates, self-efficacy must be understood by all involved as a fluid state in which the individual worker finds him or herself. Programme leaders should be always vigilant to detect possible changes in workers' self-efficacy levels. This might be established via open relationships with workers and via role play, values clarification and open discussion groups in life skills training sessions.

In this study, being a Muslim was associated with higher odds of HIV risk perception. Religions such as Christianity are factors which could affect customs regarding sexual practices such as condom use. Religion could sometimes hamper the effective use of condoms in the prevention of HIV/AIDS transmission. The Roman Catholic Church, as a Christian church, opposes condom use in favour of "direct contact" [30]. This could have serious implications in the spread of HIV/AIDS.

Notwithstanding the sensitivity of sex and sexuality matters from a religious point of view, every effort should be made to involve religious leaders in sexuality education programmes of MEL. However, caution should be exercised to maintain the scientific facts surrounding HIV/AIDS and to separate these from value laden and emotive nuance provided by religion.

## 5. LIMITATION

The results of the study should be interpreted in line with the following limitations: Firstly, for the mere fact that the respondents knew that they were under study, they might have given responses to questions and items in a manner

which they perceived as being more polite and not really as they felt about or perceived them. They might have given the answers they thought the researcher might expect.

Secondly, the sample size was small. The inclusion of more farm workers of MEL might have had some effects on the results of this study. Thirdly, being a cross-sectional study, causality could not be ascertained.

## 6. CONCLUSION

Therefore, the three components of the HBM with high significance (perceived susceptibility to HIV/AIDS, perceived barriers to condom use and perceived self-efficacy for condom use), and religion should be considered in designing policies and intervention programmes geared towards increasing HIV risk perception among workers of MEL, Cameroon. This could help in reducing the impact of HIV/AIDS on the productivity and output of workers of MEL, and MEL as a company at large.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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