



AWARENESS RISK OF TRADITIONAL FOOD TO THE INCIDENCE OF COLORECTAL CANCER - A QUALITATIVE ANALYSIS

EDAWATI BINTI HAMSAH
KETUA PENYELIA JURURAWAT KESIHATAN
PEJABAT KESIHATAN KAWASAN BELURAN SABAH

SEMINAR JURURAWAT KESIHATAN AWAM
KEMENTERIAN KESIHATAN MALAYSIA
2025

INTRODUCTION



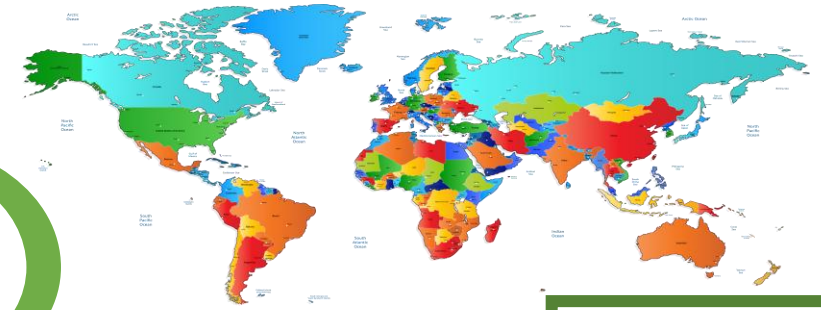
COLORECTAL CANCER

- Incidence /mortality varies worldwide and is associated with human development (societal or cultural changes) ([Arnold et al., 2016](#)).
- Globally, economically transitioning countries continue to rise because of increased exposure to risk factors (Center et al.,2009 ; Umar & Greenwald,[2009](#)).
- Differences in cancer incidence and survival between indigenous and non-indigenous populations have been reported ([Moore et al., 2015](#))
- Risk variables that compare distinct demographic variations and tools useful in Asian colorectal cancer prevention ([Smith et al., 2019](#))

PROBLEM STATEMENT

Third most common cancer
(Sitki 2019)

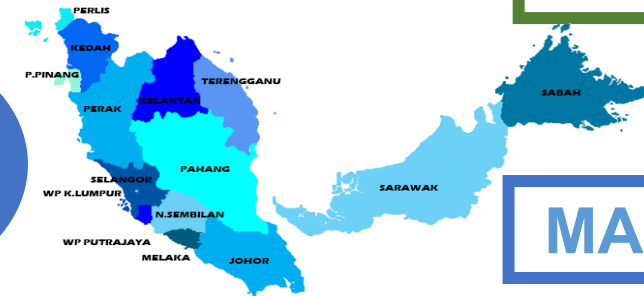
1



WORLD

Second (Male and Female)
(Ministry of Health Malaysia, 2007; Bray 2018)

2



MALAYSIA

1st cancer - (2006-2010) 593 CRC
M=1st F=3rd (2012-2016) 699 CRC
(Sabah Cancer Registry 2006-2010; 2012-2016)

3



SABAH

Increase 60% /new cases
1.1 million Cancer death 2030
(Veettil et al., 2017)

4

BURDEN

BACKGROUND

Understanding risk factors that compare differences in demographics and resources would facilitate the prevention of CRC in Asia ([Azeem et al., 2015](#)).

The seriousness of the issue has increased, with reports only including significant ethnic groups such as Malays, Chinese, Indians, and others
([Abu Hassan et al.,2014](#); [Azizah et al., 2016](#))

The population of Sabah comprises 36 indigenous groups that speak more than 80 local dialects and have a diverse range of customs and cultures
([Omar & Ibrahim 2011](#); [Yew et al., 2018](#)).

Understanding risk factors that compare differences in demographics and resources would facilitate the prevention of CRC in Asia ([Azeem et al., 2015](#)).

OBJECTIVE

To investigate Sabah ethnic awareness of the risk of traditional food to the incidence of colorectal cancer

RESEARCH QUESTION

- 1) Is there any ethnicity traditional food associated with colorectal cancer?
- 2) Is there any ethnicity traditional food served daily and associated with colorectal cancer?
- 3) Is there any ethnicity belief in the nutrition of the traditional food associated with colorectal cancer?

LITERATURE REVIEW

7

ETHNICITY



- ❖ There has been a lack of studies examining the impact of nutrition on colorectal cancer among Asians (Chen et al.,2015 ; Ozaslan et al.,2015).
- ❖ With an age-specific incidence of 10.2 per 100,000 people, CRC is not only the second most prevalent in Chinese ethnic descent but also increased, in others ethnic (Valan et al., 2021;Malaysia Cancer Statistic ,2016; Azizah et al., 2016)
- ❖ Differences in food preferences in socio-cultural practices across the various ethnic groups in Malaysia need further investigation (Kumanyika,2008; Kar et al.,2017)

LITERATURE REVIEW

TRADITIONAL DIET



- ❖ Diet affects the 30%-50% incidence of colorectal cancer worldwide ([Masrul et al., 2019](#)).
- ❖ In Asia, colorectal cancer has recently become a prominent concern because it is moving towards adopting more Westernized food practices ([Lai,Zhou,Bin, Qiangchen, Wang ,2014](#)).
- ❖ Preserved foods with salt lead to carcinogen formation (consumption of “dry fish”) ([Takachi et al.,2009](#), [Ganesh et al., 2009](#))

1 non-discriminative snowball sampling

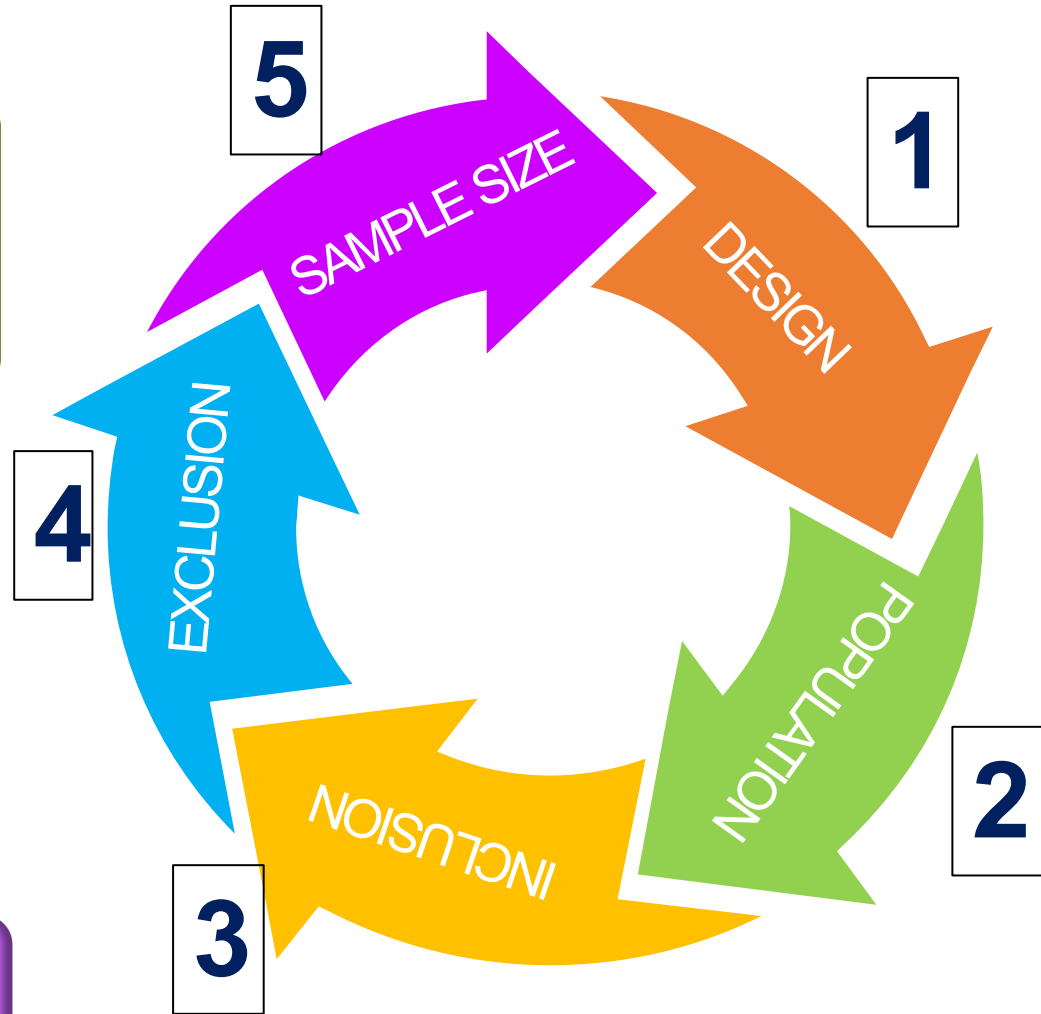
2 Recruit from the group of community :-
-High risk ethnicity in CRC under health clinic with health advisory panel (*penal penasihat kesihatan*).

3 i)-Sabah ethnicity
ii)-Not Cancer patient (ifobt -ve)
iii)-No family history of a cancer patient

4 i)-Cancer patient.
ii)-Individu with other polyps or chronic diseases.

5 Sample size based qualitative research data on health-seeking behaviour of Peninsular Malaysia's aboriginal people (Vivien 2015) **50** informant /respondent

METHODOLOGY



ETHICAL VALIDITY NMRR: 19-3905-52394

DATA COLLECTION

PRELIMINARY PHASE

First phase

- 1- Contacted/meet AMOH selected district
- Explained research (objective/program)
- 2- Endorsed letter to call Health advisory Panel chairperson to attend briefing meeting on research

Second phase

- 1-Meeting attended by AMOH and Health advisory panel
- 2-Meeting agenda
 - Ice breaking
 - research objective
 - Their responsibility

- End of the meeting
- Their leave phone number
 - Given open inviting letter to the next eligible respondent

One week after

QUALITATIVE DATA COLLECTION

Respondent with consent

- 1)-Health advisory chairperson contacted
- 2)-Meet informant by appointment :-
 - 1-Health clinic
 - 2-Selected place in community

- i)-First group
 - Face to face IDI (60-90 min)
 - 26 informant involve
- ii)-Second group
 - Focus group
 - FGI (5-6 persons)
 - 4 groups
 - 19 informant involved

Research instruments

- 1)-Semi-structured validated interview protocol
- 2)-Note taker
- 3)-Voice recorded

DATA ANALYZE

- i)- Frequency
- ii)- Atlas ti
- Data:-
 - Organize
 - Coding
 - Transcribed Verbatim
- ii)-Theme coded /categorized

ELEMENT IN TOOLS

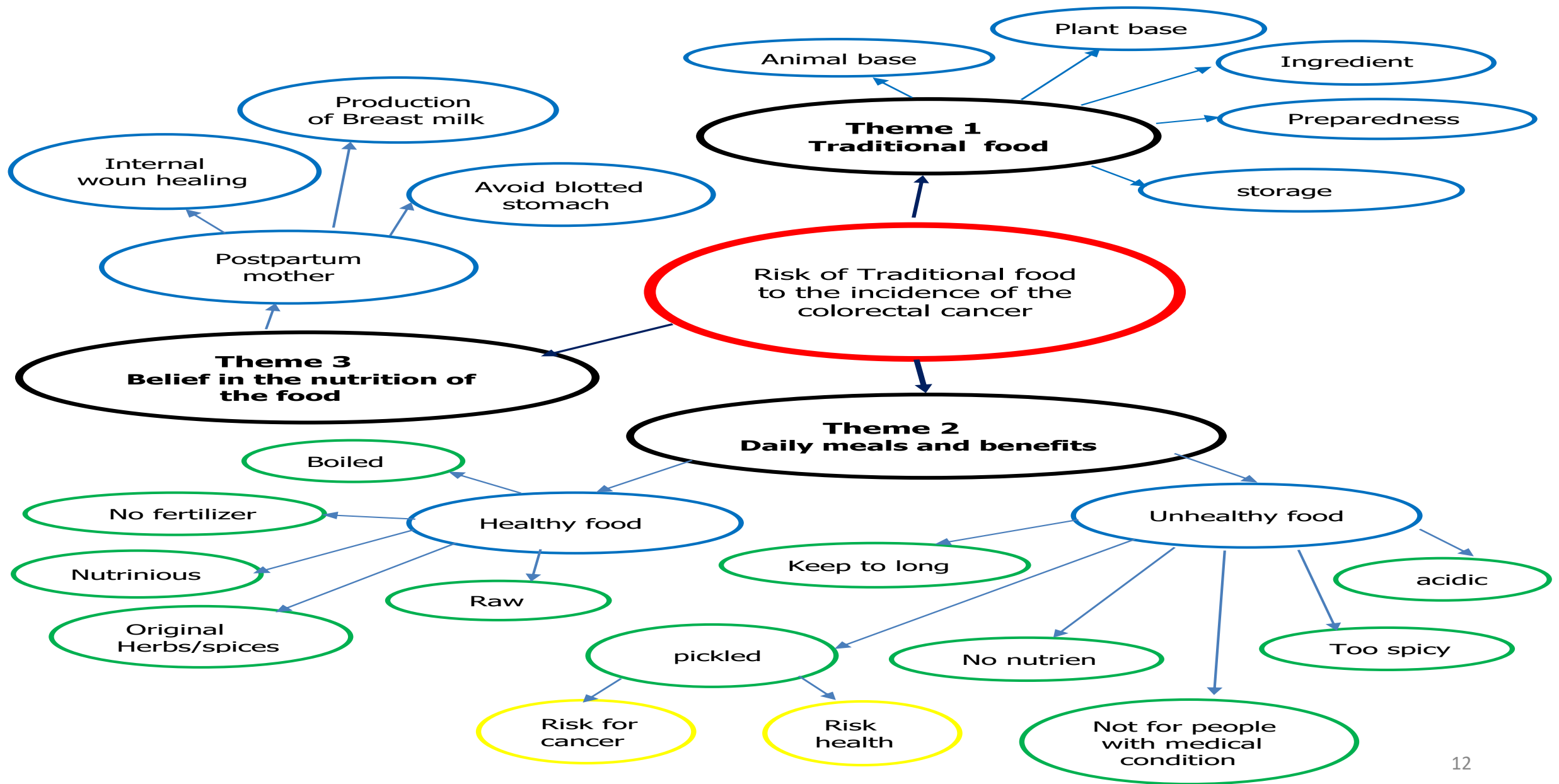


RESULT- SOSIODEMOGRAPHIC

Variable	n (%)
1. AGE	
20-29	3(6.7%)
30-39	8 (17.8%)
40-49	8(17.8%)
50-59	11(24.4%)
> 60	15(33.3%)
2. RELIGION	
Muslim	25(55.6%)
Non-muslim	20(44.4%)
3. GENDER	
Male	6(13.3%)
Female	39(86.7%)

Variable	n (%)
4. ETHNICITY	
Kadazan/Dusun	12 (26.7%)
Bajau	6(13.3%)
Murut	7(15.6%)
Bugis	4(8.9%)
Rungus	1(2.2%)
Bisaya	5(11.1%)
Sungai	3(6.7%)
Jawa	1(2.2%)
Tidung	2(4.4%)
Banjar	1(2.2%)
Brunei	1(2.2%)
Chinese	2(4.4%)
5. OCCUPATION	
Employed	20(44.4%)
Self-employed	10(22.2%)
Unemployed	3(6.7%)
Housewife	9(20.0%)
Retired	3(6.7%)

A map of themes



FINDING

3 MAJOR THEME

The three main themes discussed here have unique characteristics and are interconnected :-

THEME 1 : TRADITIONAL DIET

The variation in eating patterns among different ethnic groups can be attributed to social and cultural disparities influencing their food preference

“traditional food ...and it recognizes our appearance in the community” [R1, F,31, Bajau]. **"A food passed down through generations"** [R5, F,27, Dusun].

BASED ON ANIMALS

"Most of Our traditional food is **seafood** ...[R6, F,54, Bajau]." "... **‘bosou’, ‘turamas’..’kodop’** ...is a **pickled freshwater fish** " [R43, M,73, Dusun]. **"pickled fish ..."** [R22, F,32, Murut].

BASED ON PLANTS

"...wild ginger **‘tuhau’** usually pickled" [R5, F,27, Dusun]. **“sweet potato** is cooked with rice or called **‘linopot’** [R29, F,46, Dusun] **Bambangan** [R43, M,73, Dusun].

FINDING

- **PREPAREDNESS, RAW/COOKED,**

“ cook it in **stew** and **stir-fry fish**, or we call ‘*ampap*’ ” [R6, F,54, *Bajau*]“vegetable ulam consumed **fresh** ..**blanched** and dipped with **homemade chilies shrimp paste**” [R8, F,43, *Tidung*]. “ **pickled**” [R5, F,27, *Dusun*]. “We like **salted fish** called ‘*liking*,’ **marinated with salt and chilies** then **dried under the sun**” [R9, F,52, *Bajau*].“**Smoked fish...** “ [R35, F,57, *Irranun*

- **STORAGE,**

“**2 weeks** to make it pickled” [R34, F,35, *Murut*].“ *Bambangan* is kept for up to more than **30 days in a refrigerator** “[R26, F,39, *Bisaya*].“ salted Liking fish are dried up to **four days** before they can serve as a meal” [R9, F,52, *Bajau*].“‘*tempoyak*’ durian merah can be stored under **room temperature** for up to **one year**” [R10, F,50, *Sungai*

FINDING

THEME 2 :TRADITIONAL FOOD (SERVED DAILY AND BENEFITS)

. Traditional food has healthy and unhealthy options that were reasonably accessible, served daily, and had benefits.

HEALTHY TRADITIONAL FOOD

"Boiled vegetables .. with lemongrass and healthy ginger [R13, F,73, *sungai*] “ nutritious.. add onion” [R14 F,66, *Bugis*].“ “ *Pinasakan* (boiling freshwater fish) with ‘*bambangan*,’ [R22, F,31, *murut*].

“Our ethnic believe eating raw seaweed daily can clean the intestines because it has collagen” [R1, F,31, *suluk*]

‘*ampap*’ fish, either boiled or fried fish” [R23, F,40, Brunei]., "Because of no fertilizer, forest meat pickled is the best” [R30, F,53, *Dusun*].

“Boiled food uses a little ginger and turmeric; it is nutritious...” [R32, F,43, *Bajau*].

"It is similar to herbs if you use natural spices.” [R35, F,57, *Bajau*].

FINDING

UNHEALTHY TRADITIONAL FOOD

- **“Pickled fish like ‘*bosou*’ ‘*turamas*’.. is in every house.. it is not good for health..and high risk for any cancer”** [R22, F,32, *Murut*]. **“ can cause high intake cholesterol”**[R10, F,50, *Sungai*]
- **“ *Tuhau*’ is acidic, there is no benefit and more to increase the appetite only”**[R5, F,27, *Dusun*].
- **“Smoked and grilled fish served four times a week... grilled is not good and is believed to cause cancer”**[R35, F,57, *Irranun*].
- **“Eat spicy can causes gastric pain ”**[R2, F,32, *Jawa*].
- **““*Ambuyat*’ is lacks nutrition and can cause urination when eaten at night time”** [R26, F,39, *Bisaya*].“

FINDING

THEME 3 :THE BELIEF IN THE NUTRITION OF THE FOOD

Consuming traditional ethnic foods may have beneficial benefits on the health and well-being of both the mother and the infant in postpartum period.

- **“Jackfruit and raw papaya, coconut milk, believed to stimulate milk production”**. [R15, F,66, *Bugis*].
- **“Only boiling food... turmeric and lemongrass used in cooking during abstinence”** [R8, F,43, *Tidung*].” **“ village chicken soup mixed with ginger”** [R34, F,28, *Murut*].
- “Plain porridge avoid a blotted stomach”** [R10, F,50, *Sungaī*].
- “Drink a soup it is beneficial for internal treatment after delivery”** [R24, M,57, *Bisaya*].“

DISCUSSION

TRADITIONAL DIET

Informants socioeconomic and cultural status is determined by the importance attached to enjoying traditional "ethnic" food together.

However ethnic groups vary in terms of critical diet exposure, nutritional practices ,environmental and lifestyle which significantly influence colorectal cancer (CRC) development and prevention. Study conducted in Kelantan ,Malaysia, revealed a significant difference in dietary patterns in different ethnicities ([Abdullah, Teo & Foo, 2016](#))

Specifically, the taste of cooking (spicy, salty, and sour) and the cooking method (frying, grilling, and smoking) were identified as the primary factors contributing to colorectal cancer.

([Siegel & Fedewa, 2013](#); [Harmon et al., 2017](#); [Yang et al., 2020](#))

DISCUSSION

Majority informant prefer foods that have been fermented or cured and contain pungent, sour, salty, or acidic flavors. Based on animals :‘**bosou**’, ‘**turamas**’..’**kodop**’ ...is "**pickled fish** ..." based on plants "...wild ginger ‘**tuhau**’ usually pickled”

The consumption of large amounts of pickled food posed a risk of colorectal cancer incidence ([Shen et al., 2021](#))

Pickled foods significantly impact colorectal cancer (CRC) development more than red meat ([Lai, Zhou , Bin , Qiangchen, Wang . 2014](#))

This study contrast with study by Yusof which focused on three major ethnic groups (Malay, Chinese, and Indian). There was no association between traditional diets and colorectal cancer because the lower usage of preservation agents in these traditional diets. But acknowledged that adhering a traditional diet poses a minor risk of developing colorectal cancer ([Yusof, Isa, & Shah 2013](#))

DISCUSSION

TRADITIONAL DIET (HEALTHY / UNHEALTHY)

Informant belief that their traditional ethnic food is healthy. Being prepared by boiling them with lemongrass, ginger, and onion, which are both easy to cook and highly nutritious

Consuming vegetables and a higher fiber intake decreases the developing colorectal cancer compared to those with the lowest fiber intake

([Dahm et al., 2010](#); [Johnson et al., 2013](#))

Nevertheless, informant compassed consumption of pickled food, is detrimental to health due to its acidic nature, high cholesterol content, lack of nutritional benefits, and increased likelihood of cancer occurrence.

Excessive use of salt and prolonged storage of pickled food for more than 30 days might result in reduced nutritional value and increased acidity, leading to gastrointestinal discomfort

([Johnson et al., 2013](#))

RECOMMENDATION

-Future food research should adopt a holistic approach to build primary intervention methods for populations undergoing dietary transitions and understand the importance of food, particularly regarding colorectal cancer

CONCLUSION

Sabah ethnicity are increased risk of developing colorectal cancer. Every respondent acknowledged that understanding ethnic cuisine components and their experiences in multiracial individuals will aid in understanding risk factors, health outcomes, and psychological variables associated with nutrition.

ETHICAL APPROVAL

UMS ETHICAL APPROVAL



JAWATANKUASA ETIKA PENYELIDIKAN PERUBATAN UMS
FAKULTI PERUBATAN DAN SAINS KESIHATAN
UNIVERSITI MALAYSIA SABAH
JALAN UMS, FRINGE, COTA KINARAU,
SABAH 8, MALAYSIA
Tel: +6088-320-000 (dialah 41) (011) 511-0110
Faks: +6088-321-3777 (011) 511-0110
Email: ethics@ums.edu.my

Ruj. : LMS/FPSK6.9/100-6/1/95

Tarikh : 8 Julai 2020

JAWATANKUASA ETIKA PENYELIDIKAN PERUBATAN UMS

EDAWATI BINTI HANSAH

Fakulti Perubatan dan Sains Kesihatan
Universiti Malaysia Sabah

Puan,

KELULUSAN JAWATANKUASA ETIKA PENYELIDIKAN PERUBATAN UMS

Tajuk : *COLORECTAL CANCER RISK: A COMMUNITY-BASED CASE-CONTROL RESEARCH IN SABAH, MALAYSIA ON ETHNICITY-SPECIFIC DIET, PHYSICAL ACTIVITY, RISKY HABITS, HEALTH-SEEKING BEHAVIOUR, COMPLEMENTARY MEDICINE AND TRADITIONAL HEALING*

Dengan hormatnya perkara di atas adalah dirujuk.

Sukacita dimaklumkan bahawa Jawatankuasa ini telah meluluskan permohonan etika penyelidikan puan dengan maklumat berikut:

- Diluluskan dengan syarat seperti pada lampiran.
- Kod Kelulusan : JKEtika 1/20 (35)

Sehubungan itu, diharapkan puan dapat menjalankan penyelidikan ini tertakluk kepada peraturan yang ditetapkan.

Sekian.

Yang Ikhlas,

PROFESOR DR. MOHAMMAD SAFFREE JEFFREE

DEKAN

Merangkap Pengerusi Jawatankuasa Etika Penyelidikan Perubatan UMS

s.k. - Timbalan Naib Canselor (P & I)
- Pengerah PPPI
- Pali



BERSEKAD CAMPILAN



rcan
Pow

NMRR ETHICAL APPROVAL



JAWATANKUASA ETIKA & PENYELIDIKAN PERUBATAN
(MEDICAL RESEARCH & ETHICS COMMITTEE)
KEMENTERIAN KESIHATAN MALAYSIA
MINISTRY OF HEALTH MALAYSIA
Kompleks Institut Kesihatan Negara (NIH)
No.1, Jalan Setia Murni U13/52,
Seksyen U13 Bandar Setia Alam,
40170 Shah Alam, Selangor.



Tel.: +(6)03-33628888/ 33628205

Ruj.Kami : KKM/NIHSEC/P20-727(10)
Tarikh : 2-Julai-2020

EDAWATI HANSAH
UNIVERSITI MALAYSIA SABAH (UMS)

Dato'/ Dr/ Tuan/ Puan,

SURAT KELULUSAN ETIKA:

NMRR-19-3905-52394 (IIR)

COLORECTAL CANCER RISK: COMMUNITY-BASED CASE-CONTROL RESEARCH IN SABAH, MALAYSIA ON AN ETHNICITY-SPECIFIC DIET, PHYSICAL ACTIVITY, RISKY HABITS, HEALTH-SEEKING BEHAVIOR, COMPLEMENTARY MEDICINE, AND TRADITIONAL HEALING

Dengan hormatnya perkara di atas adalah dirujuk.

2. Bersama dengan surat ini dilampirkan surat kelulusan saintifik dan etika bagi projek ini. Segala rekod dan data subjek adalah SULIT dan hanya digunakan untuk tujuan kajian dan semua isu serta prosedur mengenai *data confidentiality* mesti dipatuhi. Kebenaran daripada Pengarah Hospital / Institusi di mana kajian akan dijalankan mesti diperolehi terlebih dahulu sebelum kajian dijalankan. Dato'/ Tuan/ Puan perlu akur dan mematuhi keputusan tersebut dan undang-undang lain yang berkaitan termasuk Akta Akses kepada Sumber Biologi dan Perkongsian Faedah 2017.

3. Penyelidik- penyelidik dan lokasi penyelidikan yang terlibat ialah:

Hospital Duchess of Kent, Sandakan
Edawati Hamsah (Penyelidik Utama)
Dr. Freddie Robinson

Hospital Keningau
Edawati Hamsah (Penyelidik Utama)

Hospital Queen Elizabeth
Edawati Hamsah (Penyelidik Utama)

Hospital Tawau
Edawati Hamsah (Penyelidik Utama)

Klinik Kesihatan Luyang
Edawati Hamsah (Penyelidik Utama)

Klinik Kesihatan Sandakan
Edawati Hamsah (Penyelidik Utama)

Klinik Kesihatan Tawau
Edawati Hamsah (Penyelidik Utama)

.../3-

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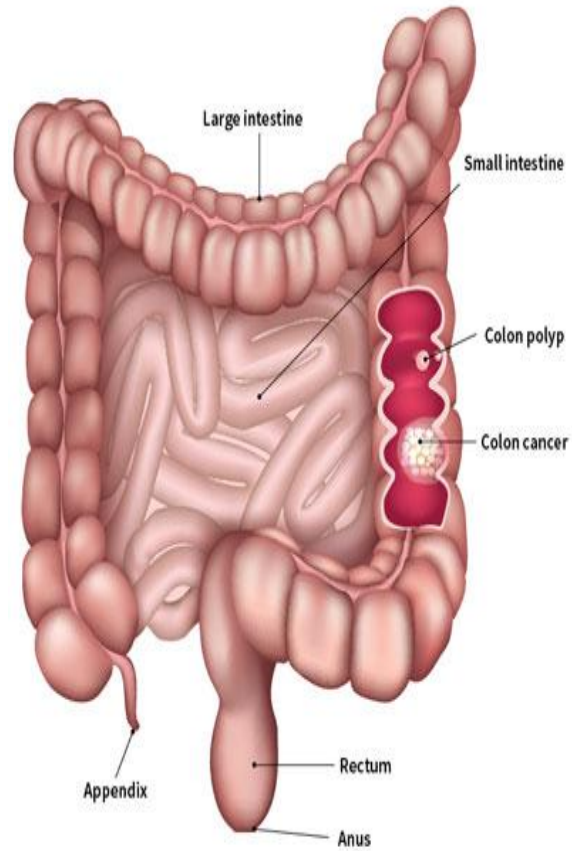
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THANK YOU