

Who are the B40 Matured and Older Rural Women Related to Freshwater Fisheries Economic Sector in Kuala Krai, Kelantan?

Zumilah Zainalaludin, Norehan Saidi, Askiah Jamaluddin & Norzalina Zainudin

Department of Resource Management and Consumer Studies, Faculty of Human Ecology,
Universiti Putra Malaysia, 43400 Serdang Selangor
Corresponding Author's Email: zumilah@upm.edu.my

To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i16/18732> DOI:10.6007/IJARBSS/v13-i16/18732

Published Date: 10-10-2023

Abstract

This paper mainly aims to predict socioeconomic indicators of matured and older rural women (MORW) (≥ 40 years old) in Kuala Krai, Kelantan, from the B40 household income category. The respondents were involved in three types of value-chain activities in the freshwater fisheries economic sector (type of FFES) – trader, processor, and operator. The data consist of $n=223$ and 31.39 percent MORW respondents in the B40 household income category. Among MORW respondents, the mean age=52.57 years old (SD=8.153 years old). The highest distribution rate among females is trader type of FFES (29.46%), and the highest distribution rate among male respondents is operator type of FFES (42.34%). Three significant ($p<0.05$) predictors were obtained - educational background, types of FFES, and marital status. The 'no schooling and primary school', married status, and trader type of FFES predict 6.431-time, 3.326-time, and explain less than 98.8 percent likelihood, respectively, of MORW in the B40 household income category. The predictors of MORW in the B40 household income category are 'no schooling and primary education', married, and trader type of FFES. In Kuala Krai, married and MORW in the B40 household income category must be given extra focus in the poverty eradication programs.

Keywords: Gender, Ageing, Poverty, Freshwater Fisheries Aquaculture, Value Chain

Introduction

Kuala Krai district is a district in Kelantan that is landlocked, hilly, and with tropical rainforest. Two major rivers converge in this area, Lebir and Galas Rivers, used for many activities,

including aquaculture and fisheries, because Kuala Krai is a Kelantan district for poverty alleviation under the 1AZAM program under freshwater fisheries economic sector (FFES). The FFES is a vital cheap protein source for the rural population (Boyd et al., 2022). Thus, it must be managed sustainably. There is a highly gender-segregated division of labour in FFES, where men are responsible for fisheries and women are responsible for processing and trading FFES products due to the masculinity of the economic sector (Satapornvanit, 2018; Krushelnytska, 2015). Nevertheless, women still play a critical role in every link of the freshwater aquaculture value chain (Ameyaw et al., 2020; Lentisco & Lee, 2015): trader, processor or operator. Therefore, women's participation in the FFES in Kuala Krai is essential for the success of the 1AZAM program.

The socioeconomic information is baseline data to understand the dynamic of women's involvement in FFES, especially the participation of women in poverty eradication programs. Seventy per cent of productive-age (40-60 years old) people are affected by chronic poverty in Kuala Krai (ICU JPM, 2021). The Ministry of Agriculture and Food Security (MAFS) is implementing *myAgropreneur Perikanan* (myAP), a fisheries entrepreneur development program led by the Department of Fisheries Malaysia that focuses on implementing enterprise programs along the fisheries value chain, such as production, processing, marketing, and fisheries support industries, including agro-tourism and recreational fishing (Department of Fisheries Malaysia, 2022). This program is offered to participants aged 18 to 60 who are registered in the e-Kasih system and have a household income of less than RM2,650 in Malaysia. In addition to eradicating poverty (SDG1) and increasing the earnings of the target groups considered extremely poor or poor, especially in rural areas generally (Department of Fisheries Malaysia, 2022), this program specifically may give opportunities to nearly 23,430 households in Kuala Krai (DoSM, 2020) to improve the socioeconomic situation of the fisheries community, with most of the population being B40.

In addition, My Agropreneurs Perikanan (myAP) program can also help to promote gender equality (SDG5) and to empower women in the fisheries community, as women continue to be marginalized in the society related to masculine FFES (World Bank, 2018; Osman et al., 2015). At the same time, their workload and responsibilities have increased in the family and the community (FAO, 2016). In each type of FFES value chain, women's socioeconomic status influences their power and roles, as women comprise about half of the population involved in fisheries development activities (U.N. Women, 2020; Jennifer, 2016). In some developing regions, women have become essential fisheries entrepreneurs, controlling significant amounts of money, financing various fish-based enterprises, and generating substantial returns to households and society (FAO, 2016; Ninawe & Diwan, 2005). However, there is always a risk to women's involvement in FFES; for example, the value chain activities were traditionally done by women; once profitable, men began to get in, and women were pushed out of the FFES (Ramachandran, 2011).

Several studies have examined poverty in different types of the value chain (Grema et al., 2020; Kamaylo et al., 2021; Alemu & Azadi, 2018; Ingram et al., 2014; Fröcklin et al., 2013). However, none of these studies focused on mature and older rural women (MORW) in each type of FFES value chain who are more vulnerable to poverty. Therefore, to introduce some poverty alleviation policies and programs in the FFES, there is a need to examine the baseline data in terms of the nature of the FFES value chains, gender, age group, poverty, and the relationship between these variables so that the program can be targeted to the needs of these MORW. Therefore, this paper aims to answer the following research questions (RQ):

RQ1: what are the profiles of the respondents?

RQ2: what are the relationships between age categories, sex of respondents, and types of FFES?

RQ3: What socioeconomic determinants predict MORW respondents in the B40 household income category?

The research objectives (RO) are as follows

RO-1: to profile the respondents.

RO-2: to measure the relationship between age categories, sex of respondents, and types of FFES.

RO-3: to identify the socioeconomic determinants that predict MORW respondents in the B40 household income category.

Literature Review

Rural Women and Poverty

Rural women are essential in any economic sector (ILO, 2019). At the same time, they are also responsible for the well-being of their family members through traditional gender roles, for example, food preparation and nurturing children and carer for older family members (Sharma et al., 2016). They contribute to many unpaid activities in FFES, especially in processing fish-based processed foods and post-harvest services (Ahmad et al., 2003; Yahaya, 2001) or supporting their husbands (Choo, 2005). However, rural women are facing many constraints in engaging in any economic activities due to gender discrimination, traditional gender roles, social norms, disproportionate participation in unpaid work, and unequal access to education, health care, property, and financial resources (Ismail & Jarji, 2012; Govender & Penn-Kekana, 2008). Thus, rural women, especially older people, are vulnerable and consistently associated with feminized poverty (Baiyegunhi & Fraser, 2011).

Rural women workers earn less than their men counterparts (FAO, 2011). According to William et al (2012), women who contribute to FFES earn less than men and have less access to decision-making and resource management in FFES. Therefore, the role of rural women is always in less male-dominated activities, such as fish-processing food enterprises, which causes them to be more vulnerable and less empowered than men in FFES (Salim et al., 2017; Porter, 2012), primarily single mothers with many dependents and older women who lack social protection and financial security (Yuliandi et al., 2018; Ahmad et al., 2016). According to ILO (2019), women in rural areas are paid, on average, one percent less than men and tend to work long hours. Besides, many earn a low income, make nothing, and only be housewives who serve the family and FFES activities for free (ILO, 2019; Ogunlela & Mukhtar, 2009; Ahmad et al., 2003). Thus, many studies support that women in rural areas, especially older women and heads of household, are prone to poverty (OECD, 2019; Ahmad et al., 2016; Masud et al., 2015; WHO, 2010).

Women contribute to agricultural production, food security and nutrition, land and natural resource management, and climate resilience building (ILO, 2019). Thus, their roles are increasingly being recognized (Zhao, 2019). Nevertheless, according to Shahbaz et al. (2017), rural women still have limited or no access to livelihood assets such as education, credit, infrastructure, and health facilities, and they lack nutritious food, safe drinking water, poor sanitation, and little input into household decision-making. Morrison and Morrison (2007) found a significant link between gender equality and poverty reduction and growth. Thus, gender equality has been observed in rural areas; if rural women are economically

empowered, they can ultimately be empowered in political, social, and institutional aspects of life (Shahbaz, 2017). In other words, women's social status greatly impacts the empowerment process. Moreover, rural women who are free to move outside the four walls of the home were more empowered and involved in paid work, significantly impacting their household income and poverty to improve or enhance their status in fisheries society (Torre et al., 2019).

Effects and Development of Type of Fisheries Value Chain Activities towards the Population's Economy

The FFES creates a new opportunity for people in poverty or to benefit low-income households and becomes one of the determinants in identifying activities, relationships, constraints, and possible upgrading of operator, processor, and trader activities (Kamaylo et al., 2021; Alemu & Azadi, 2018; Marsden et al., 2000). However, Morris et al. (2011) noted that literature often focuses on the economic rather than the social aspects of upgrading the value chains, such as improved working conditions, functional skills, and better-pay jobs. According to Rota and Sperandini (2010), this could be due to gender-related obstacles such as barriers to mobility, access to inputs, productive resources, and market information, which makes it particularly difficult for women to access profitable market niches and economic gains in value chains. In addition, micro-rural enterprises are often unable to achieve economies of scale and scope; due to their size and lack of bargaining power (ILO, 2011). Therefore, the entrepreneurial skills of rural women should be strengthened by facilitating their access to financial and business management training, as in Kapoor (2019), where entrepreneurial skills were increased to diverse business activities and impacted women's economic development and self-esteem.

Many micro-rural enterprises also face difficulties with safety and quality concerns on their fish-base products (Santoso et al., 2020) which are due to poor cold chain systems that link refrigeration and cooling (Heap et al., 2013), as well as low capital and not able to buy more supporting infrastructure in fish production centers (Arvitrida et al., 2019). The consequences of these constraints are the inferior quality of fish products and high-cost differentials (Bai et al., 2019), and a lack of innovation (Santoso et al., 2020). The primary goal of innovation is to create new value propositions for the systems (Ali & Haseeb, 2019; Haseeb et al., 2019; Haseeb et al., 2019; Suryanto et al., 2018). According to Ordanini and Parasuraman (2011), innovation is the most crucial aspect of any industry. Thus, it may limit the potential of the business to grow. Therefore, research and educational institutions, companies, government, non-governmental organizations, funding agencies, and networks should all be involved in increasing the FFES and rural economy. It is for economic growth, food security, rural development, women empowerment, and good life well-being.

Methodology

This paper is a correlational design study through a survey conducted among males and females involved in three types of FFES value chains in Kuala Krai, Kelantan. Kuala Krai was selected from 10 Kelantan districts because of the lowest median income of RM2,541 compared with the state's median income of RM3,079 (Department of Statistics, 2016) and the 1AZAM program through FFES. The aquaculture outputs in this study are fresh freshwater fish and processed fish-based products (i.e., fresh salted fish, dried fish, smoked and fermented fish). Therefore, three critical terminologies of respondents' categories in this paper are – 1) the operators who involve in producing fresh fish through aquaculture

freshwater farming, 2) the processor who involve in processing fresh fish-based products, and; 3) the traders who are the entrepreneurs selling FFES products or processed fish-based products in the market.

Sampling and Data Collection

This paper focused on the population of the operators ($N=78$) of aquaculture farming in Kuala Krai. The population of operators are those registered under Kuala Krai Department of Fisheries (DOF) office and were approached with the assistance of a few DOF officers to answer the questionnaire. $N=440$ traders and processors are registered under Kuala Krai District Office (Table 01) (local government business permit) related to fish-based products. According to Krejcie and Morgan (1970), for $N=440$, the $n=205$. Table 01 demonstrates the sampling of processors/traders by sub-district: Batu Mengkebang, Dabong, Manek Urai, and Guchil.

Table 01

Sampling and Data Collection Table ($n=283$)

| Type of Respondents Sex/District or Sub-district | Operator $N=78$ | | Entrepreneurs/Traders $N=440$ | Total n |
|---|--------------------|-----|----------------------------------|-----------|
| | male | | female | |
| Manek Urai | 16 | | 65 | 81 |
| Batu Mengkebang | 24 | | 35 | 59 |
| Guchil | 12 | | 40 | 52 |
| Dabong | 26 | | 65 | 91 |
| Total $n=283$ | 78 | 205 | 283 | |

Note:

- 1) The sample size (n) distribution in each sub-district was according to the number of villages.
- 2) $N=78$ for operators registered under DOF Kuala Krai (population)
- 3) By Krejcie and Morgan $n=205$ for $N=440$

Null Hypothesis

Two null hypotheses were tested

H_{01} : no relationship between age categories, types of FFES, and sex of respondents.

H_{02} : no socioeconomic indicators predict MORW respondents in the B40 household income category.

Data Analyses

In this paper, the profiles of respondents are presented through descriptive statistics to achieve RO-1. A Chi-Square test was used to achieve RO-2, and the binary Logistic Regression Model (BLR Model) was used to achieve RO-3. The dependent variable (DV)=1 in BLR Model is MORW in the B40 category, and DV=0 is the 'other' category of respondents. The independent variables or predictors in BLR Model (IVs) are academic background, marital status, and types of FFES.

BLR Model 1 - $\ln Y_{\text{MORW in B40 Category}} = a + b_1_{\text{marital status}} + b_2_{\text{academic background}} + b_3_{\text{FFES value chain activities}}$

Notes

- i) Dependent variable (DV) is MORW in B40 Category = 1, Other Category = 0
- ii) B40 category of household income (income RM4850 and below)

Findings and Discussion

Table 02 demonstrates data of $n=223$ (50.20% female, 49.80% male). About one-third of the data, $n=65$ (29.15%), is MORW which are 40-59 years old (78.5%) and older (≥ 60 years old [21.5%]). The rest of the respondents (70.85%) are either younger (less than 40 years old) (male & female) or mature and older male respondents. Among MORW respondents, the mean age=52.57 years old (SD=8.15 years old). For all respondents, the mean age=40.88 years old (SD=14.74 years old) implies that all respondents are on average mature and older men and women. Therefore, the involvement in FFES in Kuala Krai may decline due to old-age factors because FFES is a masculine economic sector (Satapornvanit, 2018; William et al., 2012; William, 2008) which needs the involvement of able-body, fit and young individuals. From sample $n=205$ of traders/processors, $n=168$ (81.95%) of data was collected, and from population $N=78$ of operators, $n=60$ (76.92%) was collected. In total, $n=223$ of collected data, 26.91 per cent are operators, 37.22 per cent are traders and 35.87 per cent are processors types of FFES (Table 02). Among $n=65$ (28.51%) MORW, only one operator, 33 traders and 31 processors type of FFES. The majority (50.8%) of the MORW respondents in this paper are traders, 47.7 per cent are processors, and only 1.5 per cent are operators (Table 02). Many studies state that women are actively involved as traders (Fröcklin et al., 2013; Weeratunge et al., 2010; Walker et al., 2008). However, men tend to control the profitable large-scale operations of high-value fish, while most women focus on the local market and low-value fish (Ingram et al., 2014; De Silva et al., 2012; De Silva, 2011). About 83.1 percent of MORWs are married, while a few are single (Table 2). The 'married' status is a 'not poor' indicator among rural women (Zainalaludin et al., 2022; Kramer et al., 2016). Nevertheless, marital status can dampen women through the additional burden of traditional gender roles (U.N. Women, 2015) while working in FFES (Toff & Palmer, 2019) because, in most cases, women involved in the FFES value chain are for free (Yahaya, 2001) because they are considered as helping their male family members.

Among MORW respondents, a high percentage had a secondary or higher level of academic background (58.5%), and 41.5 percent had 'no schooling or primary education' as their academic background (Table 02). In other words, around half of MORWs had either a common educational experience or no schooling, and this could be another reason for the low productivity of their business in the FFES value chain because of innovative practices need knowledge to increase or improvise the business products from time to time (Obetta et al., 2020). Due to poverty and marginalization (Solaymani & Kari, 2014; Béné & Friend, 2011; Béné, 2003), the startup capital is low, and there is no additional capital to develop the business. Thus, it is hard for them to grow. Moreover, some may be illiterate, so they cannot access information related to entrepreneurship development in their places. In summary, good academic backgrounds are essential to escape poverty (Giovetti & McConville, 2020; Awan et al., 2011).

Table 02

Profiles of the Respondents (n=223)

| Socioeconomic Profile | | Variables | MORW | | Others | |
|-----------------------|--|----------------------|-----------|------|-----------|------|
| | | | n | % | n | % |
| Type of FFES | | Operator | 1 | 1.5 | 59 | 37.3 |
| | | Trader | 33 | 50.8 | 50 | 31.6 |
| | | Processor | 31 | 47.7 | 49 | 31.0 |
| Marital Status | | Married | 54 | 83.1 | 106 | 67.1 |
| | | Single | 11 | 16.9 | 52 | 32.9 |
| Academic Background | | Primary and lower | 27 | 41.5 | 35 | 22.2 |
| | | Secondary and higher | 38 | 58.5 | 123 | 77.8 |
| Poverty Status (B40) | | Non B40 | 3 | 4.6 | 13 | 8.2 |
| | | B40 | 62 | 95.4 | 145 | 91.8 |
| Age | | Mean | 52.57 | | 40.88 | |
| | | SD | 8.15 | | 14.74 | |
| Household Income | | Mean | RM1857.20 | | RM2145.81 | |
| | | SD | RM1761.73 | | RM3396.35 | |

Women related to FFES are usually associated with full-time housewives and are entirely dependent on their husbands for their livelihood (Bahtiar et al., 2021; Wei et al., 2021; Wahab et al., 2018; Islam, 2008), and half of the rural women did not belong to a cooperative society (Mukaila et al., 2022). The high majority (95.4%) of the MORW in the B40 group of household income category have a mean household income of RM1857.20 (SD= RM1761.73) (Table 02). They had an income below the Malaysia Poverty Line Income (2019) = RM2208, and much below the range of the B40 Malaysian monthly household income category (\leq RM4850). This result implies that most MORWs are poor or low-income earners. This may severely affect household poverty because of the masculine FFES, being women, and being mature and older adults (Mohd, 2014). Through R01, this paper concludes that most MORW respondents are traders, a high percentage of them had a secondary level of academic background or higher, are married and are in the B40 group of the household income category. The average monthly household income is below (Malaysia PLI, 2019).

Relationship between Types of FFES, Sex of Respondents and Age Groups (RO-2)

Table 03 presents the relationship between types of FFES, the sex of MORW respondents and their age groups. Three types of FFES value chains are freshwater fish farm operators (Operator), businesses selling fish-based products (Trader), and companies producing fish-based products (processors). The 40-year-old was a cut-off point for the age categories, which are \geq 40-year-old is MORW, and $<$ 40-year-old is a younger age group. The H_{01} (there was no relationship between types of FFES, sex of respondents and the age groups among MORW) was tested to achieve the RO-2 through the Chi-Square test. It had been rejected because of the significant ($p < 0.05$) relationship obtained between types of FFES, sex of respondents and age groups. The highest percentage among MORWs (older female group) is trader type of FFES (29.46%), and among older males, the highest rate of distribution is operator type of FFES (42.34%) (Table 03) value chain. A high rate (25%) among younger female respondents is processor type of FFES, and among younger males (16.22%) is trader type of FFES value chain.

The female traders get fresh fish from their husbands, the operators (William et al., 2012), fish-based enterprises processing raw fish to proceed with food products, or directly from the landing sites (FAO, 2015). The areas where they will sell their fish will depend significantly on their mobility and access to ice and processing techniques for making the product last longer without perishing (Lentisco & Lee, 2014). Due to they are micro-scale enterprises, they need a commercial freezer to assist them in their business.

Table 03

Distribution of the Respondents by Types of FFES, Sex of Respondents and Age Group (n=223)

| Type of FFES Value Chain | Matured and Older | | | | Younger | | | |
|--------------------------|-------------------|-------|------|-------|---------|-------|------|-------|
| | Female | | Male | | Female | | Male | |
| | n | % | n | % | n | % | n | % |
| Operator | 1 | 0.89 | 47 | 42.34 | | | 12 | 10.81 |
| Trader | 33 | 29.46 | 13 | 29.46 | 19 | 16.96 | 18 | 16.22 |
| Processor | 31 | 27.68 | 12 | 27.68 | 28 | 25.00 | 9 | 8.11 |

Note

- $p < 0.05$ (Chi-Square)
- 40 years old age-category cut of point.

However, involved in a masculine FFES, the MORW need different approaches. For example, mobility methods are influenced by the MORW capacity, availability, and the environment and their decision-making process (Gorman et al., 2019). The mobility decisions are, in turn, shaped by the built environment, safety, the attitudes of the MORW and others in FFES, and having both a motivation and the means to be mobile as an example using assistive devices or transportation (Lentisco & Lee, 2014; Camping et al., 2012), and this may be due to MORW usually experiencing the geographical barrier of their home is far from the FFES areas (Collins et al., 2014), the market, and the need for women-friendly and MORW-friendly accommodation and facilities (Zhao et al., 2013). However, since women are associated with reproductive work, gender inequalities in access to fisheries resources affect women's livelihoods and the entire household (Fröcklin et al., 2013; Weeratunge et al., 2010). Although MORW may not have babies to care for, they are usually caregivers to their grandchildren and older parents. Through RO-2, this paper concludes that most MORW is traders while the men are the majority operators. These findings may support the masculinity of FFES, and women's involvement in FFES through the value chain activities, especially as fish-based traders or fish-based food entrepreneurs, which are less masculine.

Predictor of Matured and Older Rural Women (MORW) in B40 Category in Kuala Krai, Kelantan

This sub-topic presents the findings on RO3 (to identify the socioeconomic determinants that predict MORW respondents in the B40 category of household income). Thus, the H_{02} (no socioeconomic determinant predicts MORW respondents in the B40 household income category) was tested through BLR Model 1. The BLR Model 1 fit and is significant ($p < 0.05$). All IVs in the model explained 37.2 percent of the variance in the DV - thus, H_{02} was rejected. Three predictors significantly ($p < 0.05$) explain the DV. They are academic background (no schooling/primary school=1), marital status (married=1), and type of FFES (trader=1), which respectively predicts 6.431-time, 3.326-time, and less than 98.8 percent likelihood of MORW respondents in the B40 household income category (Table 04).

Table 04

Wald Chi-Square Statistics Predictor of Matured and Older Rural Women (MORW) in B40 Category in Kuala Krai (n=223)

| | B | S.E. | Wald | df | Sig. | Exp(B) |
|---|--------|-------|--------|----|-------|--------|
| Marital status (Married=1) | 1.202 | 0.429 | 7.842 | 1 | 0.005 | 3.326 |
| Academic Background (no schooling/primary school=1) | 1.861 | 0.445 | 17.509 | 1 | 0.000 | 6.431 |
| Operator | | | 19.431 | 2 | 0.000 | |
| Trader | -4.397 | 1.081 | 16.541 | 1 | 0.000 | 0.012 |
| Processor | 0.458 | 0.373 | 1.505 | 1 | 0.220 | 1.580 |
| Constant | -1.928 | 0.460 | 17.596 | 1 | 0.000 | 0.145 |

In conclusion, a 'no schooling/primary school' of academic background predicts MORW in the B40 household income category. This finding is supported by Saidi et al. (2021) and Zainalaludin (2012), who found that rural women are usually associated with low academic backgrounds and fisheries communities are in rural areas. Many studies also support this finding that fisheries community members have a common educational experience (William et al., 2012; CRFM, 2012; Bene & Friend, 2011; William, 2008). The low academic background of people in rural areas may cause poverty (Cahaya, 2015; Calson & Buttram, 2004), which may result in both boys and girls in fisheries communities not receiving a proper education (McWilliam et al., 2021; Abdullahi et al., 2013; Mitra et al., 2008). The factors that contribute to low academic backgrounds in rural localities are poor education services (Shah et al., 2010; Singh et al., 2010), lack of various resources (World Bank, 2010), and remote geographical location (Nagaraj et al., 2017; Maddox, 2007).

Table 04 shows that married status predicts 3.326 times the likelihood of MORW respondents in the B40 household income category. According to Thandar et al (2020), women usually participate in agriculture activities and the formal and informal sectors. However, their roles are often ignored and undervalued, and they are mainly not employed and work for free because they depend on their husband for a living (Wahab et al., 2018; Yeo, 2007). Consequently, many women are poorer than men in fisheries society (Siason et al., 2002). Some past studies focused on what women do in FFES (Alonso-Población & Siar 2018; Eder, 2005) in that most activities are unpaid or the women only receive small pay. One of the reasons is that they cannot get directly involved in FFES because of gender challenges (Kleiber et al., 2017), the feminine abilities of women (An & Kim, 2007; Chaiken & Pliner, 1987) and traditional gender roles (Salmi & Sonck-Raotio, 2018; Reantaso, 2012) especially as married women. Therefore, it is hard for women to compete with masculine men in FFES (Frangoudes et al., 2019; Geheb et al., 2008). Usually, more patriarchal families with fewer women are involved in decision-making than in other societies with less masculine economic sectors. According to Boateng et al. (2014), married women are significantly non-poor and more likely to be involved in household decision-making if the family and the society are fewer patriarchs and the economic sector is less masculine. Much literature obtained married as an indicator of not being poor among women, but this paper concludes otherwise.

Among three FFES value chains but only trader is significant ($p < 0.05$) and predicts less than 98.8 per cent likelihood of MORW respondents in the B40 household income category (Table 04). In other words, being a trader is a good solution for poverty eradication among women in fisheries society. According to Medard et al (2002), women participating in fish trade

marketing have been spurred by cultural, social, economic, and political factors, where most of them do not come from fisheries society but had married fishermen (Widihastuti & Zulham, 2019). Thus, they have taken up fish trading and processing as a source of income due to easy accessibility to fish, easy storage, divisibility, the profitability of the enterprise and low initial capital requirements (Medard et al., 2002; Medard & Geheb, 2001). In addition, according to Medard & Geheb (2001), women are more involved as a trader because they have a direct supply of fresh fish in their family lineage, so they can easily store at their homes and satisfy their customers with small quantities but good qualities.

Conclusion AND Recommendation

This study focused on MORW in FFES at Kuala Krai, Kelantan, from the B40 group of household income category who were mainly involved as trader types of value chain activities. Most women are traders, while the men are the majority operators. The predictors of B40 MORW are 'not schooling/primary education', married, and trader type of FFES value chain activities. Therefore, in Kuala Krai, married and poor MORW must be given extra focus in the poverty eradication program. The recommendation to eradicate poverty among MORW is to focus on a family business or farm-preneur – the wives process and market the fish while the husbands produce fresh fish. There must be segregation between husband and wives' activities for the women to be empowered – have control over their resources and decision-making power, and not involve in aquaculture farming activities with no pay. The MORW must be involved in capacity-building programs, especially in GIG Economy, to sell fish or fish-based products and financial assistance programs.

Acknowledgment

Universiti Putra Malaysia funded this study under the Putra Grant (G.P.) (Grant Number: UPM/700-2/1/GP/2018/9603000; Vot No. 9603000); scheme titled "Gender gap study on the role of aquaculture activity value chains in enhancing the financial security of vulnerable households in Kuala Krai, Kelantan". We also would like to thank all participants and collaborators of the study.

Reference

- Abdullahi, I., Zainalaludin, Z., & Paim, L. (2013). Empowering Rural Girls through Education: Way of Reducing Vulnerability and Improving Family Economic Well-being in Rural Northern Nigeria.
- Ahmad, A. T., Isa, M. M., Ismail, M. S., & Yusof, S. (2003). Status of demersal fishery resources of Malaysia. *Assessment, management and future directions for coastal fisheries in Asian countries*, (67), 83.
- Ahmad, N. F., Mansor, M., & Paim, L. (2016). Income poverty and well-being among vulnerable households: A study in Malaysia. *Asian Social Science*, 12(2), 195. DOI: 10.5539/ass.v12n2p195
- Alemu, A. E., & Azadi, H. (2018). Fish value chain and its impact on rural households' income: Lessons learned from Northern Ethiopia. *Sustainability*, 10(10), 3759.
- Ali, A., & Haseeb, M. (2019). Radiofrequency identification (RFID) technology is a strategic tool towards the higher performance of supply chain operations in the textile and apparel industry of Malaysia. *Uncertain Supply Chain Management*, 7(2), 215-226.

- Alonso-Poblacion, E., & Siar, S. V. (2018). Women's participation and leadership in fisherfolk organizations and collective action in fisheries: a review of evidence on enablers, drivers and barriers. *FAO Fisheries and Aquaculture Circular*, (C1159), 1-48.
- Ameyaw, A. B., Breckwoldt, A., Reuter, H., & Aheto, D. W. (2020). *From fish to cash: Analyzing the role of women in fisheries in the western region of Ghana*. *Marine Policy*, 113, 103790.
- An, D., & Kim, S. (2007). Relating Hofstede's masculinity dimension to gender role portrayals in advertising. *International Marketing Review*.
- Arvitrida, N. I., Rahmawati, D., & Lastomo, D. (2019, March). Fishery Supply Chains in Indonesia: Improvement Opportunities on The Downstream Side. In *2018 International Conference on Industrial Enterprise and System Engineering (ICoIESE 2018)* (pp. 253-257). Atlantis Press.
- Awan, M. S., Malik, N., Sarwar, H., & Waqas, M. (2011). Impact of education on poverty reduction.
- Bahtiar, B. A., Yusof, H. M., & Kamarudin, K. S. (2021). Child Development and Nutritional Status of Children Under Five: A Cross-Sectional Study of a Fishermen Community in Terengganu, Malaysia. *Jurnal Gizi dan Pangan*, 16(2), 91-100.
- Bai, Y., Alemu, R., Block, S. A., Headey, D., & Masters, W. A. (2021). Cost and affordability of nutritious diets at retail prices: evidence from 177 countries. *Food policy*, 99, 101983.
- Baiyegunhi, L. J. S., & Fraser, G. C. G. (2011). Vulnerability and poverty dynamics in rural areas of Eastern Cape Province, South Africa. *Ghana Journal of Development Studies*, 8(2), 84-100.
- Bene, C. (2003). When fishery rhymes with poverty: a first step beyond the old paradigm on poverty in small-scale fisheries. *World Development*, 31(6), 949-975.
- Bene, C., & Friend, R. M. (2011). Poverty in small-scale fisheries: old issue, new analysis. *Progress in Development Studies*, 11(2), 119-144
- Boateng, G. O., Kuuire, V. Z., Ung, M., Amoyaw, J. A., Armah, F. A., & Luginaah, I. (2014). Women's empowerment in the context of millennium development goal 3: A case study of married women in Ghana. *Social Indicators Research*, 115(1), 137-158.
- Boyd, C. E., McNevin, A. A., & Davis, R. P. (2022). The contribution of fisheries and aquaculture to the global protein supply. *Food security*, 14(3), 805-827.
- Cahaya, A. (2015). Fishermen community in the coastal area: A note from Indonesian poor family. *Procedia Economics and Finance*, 26, 29-33. doi: 10.1016/S2212-5671(15)00801-1
- Campling, L., Havice, E., & McCall Howard, P. (2012). The political economy and ecology of capture fisheries: market dynamics, resource access and relations of exploitation and resistance. *Journal of agrarian change*, 12(2-3), 177-203.
- Carlson, R. V., & Buttram, J. L. (2004). Case Studies of Rural Schools Implementing Comprehensive School Reform Models. *Paper presented at the Annual Conference of the American Educational Research Association*
- Chaiken, S., & Pliner, P. (1987). Women, but not men, are what they eat: The effect of meal size and gender on perceived femininity and masculinity. *Personality and Social Psychology Bulletin*, 13(2), 166-176
- Choo, P. S. (2005). Women's unpaid labour in the small-scale fisheries in Malaysia. *Women in fisheries and aquaculture: Lessons from the past, current actions and ambitions for the future*, 55-64.

- Collins, L., Al-Dajani, H., Bika, Z., Swail, J., & Chant, S. (2014). Exploring the “feminization of poverty” in relation to women’s work and home-based enterprise in slums of the Global South. *International Journal of Gender and Entrepreneurship*.
- CRFM. (2012). Diagnostic Study to Determine Poverty Levels in CARICOM Fishing Communities - Policy Document. CRFM Technical & Advisory Document, Number 2012 / 3, Volume II. 25p.
- De Silva, A., Bjorndal, T., & Lem, A. (2012). Role of gender in global fishery value chains: A feminist perspective on activity, access and control profile.
- De Silva, D. A. M. (2011). Faces of women in global fishery value chains: Female involvement, impact and importance in the fisheries of developed and developing countries. *NORAD/FAO Value Chain Project*.
- Department of Fisheries Malaysia. (2022). Entrepreneur Development/Fisheries Agropreneur. Retrieve from [https://www.dof.gov.my/en/services/fisheries-extension/fisheries-agropreneur/#:~:text=myAgropreneur%20Perikanan%20\(myAP\)](https://www.dof.gov.my/en/services/fisheries-extension/fisheries-agropreneur/#:~:text=myAgropreneur%20Perikanan%20(myAP))
- Department of Statistics Malaysia (DoSM). (2020). Current Population Estimates, Malaysia, 2020. Press Release.
- Eder, J. F. (2005). Coastal resource management and social differences in Philippine fishing communities. *Human ecology*, 33(2), 147-169
- FAO. (2011). The State of Fisheries and Aquaculture. Food and Agriculture Organization, Rome
- FAO. (2015). Towards the implementation of the SSF Guidelines. Proceedings of the Workshop on the Development of a Global Assistance Programme in Support of the Implementation of the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication, Rome, Italy, 8–11 December 2014. Rome.
- FAO. (2016). The State of Food and Agriculture 2016 (SOFA): climate change, agriculture and food security.
- Frangoudes, K., Gerrard, S., & Kleiber, D. (2019). Situated transformations of women and gender relations in small-scale fisheries and communities in a globalized world.
- Frocklin, S., de la Torre-Castro, M., Lindström, L., & Jiddawi, N. S. (2013). Fish traders as key actors in fisheries: Gender and adaptive management. *Ambio*, 42, 951-962.
- Geheb, K., Kalloch, S., Medard, M., Nyapendi, A. T., Lwenya, C., & Kyangwa, M. (2008). Nile perch and the hungry of Lake Victoria: Gender, status and food in an East African fishery. *Food Policy*, 33(1), 85-98.
- Giovetti, O., & McConville, K. (2020). How does education affect poverty? It can help end it. *Concern*. Accessed from <https://www.concerns.org/story/how-education-affects-poverty>.
- Gorman, M., Jones, S., & Turner, J. (2019). Older people, mobility and transport in low-and middle-income countries: A review of the research. *Sustainability*, 11(21), 6157.
- Govender, V., & Penn-Kekana, L. (2008). Gender biases and discrimination: a review of health care interpersonal interactions. *Global public health*, 3(S1), 90-103
- Grema, H. A., Kwaga, J. K. P., Bello, M., & Umaru, O. H. (2020). Understanding fish production and marketing systems in North-western Nigeria and identification of potential food safety risks using value chain framework. *Preventive Veterinary Medicine*, 181, 105038.
- Haseeb, M., Abidin, I. S. Z., Hye, Q. M. A., & Hartmann, N. H. (2019). The impact of renewable energy on the economic well-being of Malaysia: Fresh evidence from the autoregressive distributed lag bound testing approach. *International Journal of Energy Economics and Policy*, 9(1), 269.

- Haseeb, M., Zandi, G., Hartani, N. H., Pahi, M. H., & Nadeem, S. (2019). Environmental analysis of the effect of population growth rate on supply chain performance and economic growth of Indonesia. *Ekoloji*, 28(107), 417-426.
- Heap, J., O'Rourke, S., Dillon, R., & Chaplin, L. (2013). Case Study 7: Indonesian Fisheries. In *Marketing Cases from Emerging Markets* (pp. 59-65). Berlin, Heidelberg: Springer Berlin Heidelberg.
- ILO. (2011). Value Chains for Rural Development. Retrieved by https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/--ifp_seed/documents/publication/wcms_161156.pdf
- ILO. (2019). Empowering Women in the Rural Economy. *Decent Work In The Rural Economy Policy Guidance Notes*.
- Ingram, V., Schure, J., Tieguhong, J. C., Ndoye, O., Awono, A., & Iponga, D. M. (2014). Gender implications of forest product value chains in the Congo basin. *Forests, Trees and Livelihoods*, 23(1-2), 67-86.
- Islam, M. S. (2008). From sea to shrimp processing factories in Bangladesh: gender and employment at the bottom of a global commodity chain. *Journal of South Asian Development*, 3(2), 211-236. DOI: 10.1177/097317410800300202
- Ismail, R., & Jajri, I. (2012). Gender wage differentials and discrimination in the Malaysian labour market. *World Applied Sciences Journal*, 19(5), 719-728.
- Jennifer, G. (2016). Promoting gender equality and women's empowerment in fisheries and aquaculture.
- Kamaylo, K., Galtsa, D., Tsala, T., Tarekegn, K., Oyka, E., & Dukamo, M. (2021). Value chain analysis of fish in Gamo zone, Southern Ethiopia. *Cogent Food & Agriculture*, 7(1), 1916183.
- Kapoor, S. (2019). Entrepreneurship for economic and social empowerment of women: A case study of a self-help credit program in Nithari Village, Noida, India. *Australasian Accounting, Business and Finance Journal*, 13(2), 123-142.
- Kleiber, D., Frangoudes, K., Snyder, H. T., Choudhury, A., Cole, S. M., Soejima, K., & Porter, M. (2017). Promoting gender equity and equality through the small-scale fisheries guidelines: experiences from multiple case studies. In *The small-scale fisheries guidelines* (pp. 737-759). Springer, Cham.
- Kramer, K. Z., Myhra, L. L., Zuiker, V. S., & Bauer, J. W. (2016). Comparison of poverty and income disparity of single mothers and fathers across three decades: 1990–2010. *Gender Issues*, 33(1), 22-41
- Krejcie, R. V., & Morgan, D. W. (1970). Determining Sample Size for Research Activities. Educational
- Krushelnytska, O. (2015). *Toward gender-equitable fisheries management in the Solomon Islands*. World Bank.
- Lentisco, A., & Lee, R. (2014). Beyond fish processors and caregivers: Women as primary, secondary and tertiary fish users. *Gender in aquaculture and fisheries: Navigating change*, 33.
- Lentisco, A., & Lee, R. U. (2015). A review of women's access to fish in small-scale fisheries. *FAO Fisheries and Aquaculture Circular*, (C1098), 1.
- Maddox, B. (2007). Literacy in fishing communities. Norwich, UK: ODG, *The Sustainable Livelihoods Programme*.
- Marsden, T., Banks, J., & Bristow, G. (2000). Food supply chain approaches: exploring their role in rural development. *Sociologia ruralis*, 40(4), 424-438.

- Masud, J., Hamid, T. A., & Haron, S. A. (2015). Measuring poverty among elderly Malaysians. *Asian Journal for Poverty Studies (AJPS)*, 1(1).
- McWilliam, A. R., Wianti, N. I., & Taufik, Y. (2021). Poverty and prosperity among Sama Bajo fishing communities (Southeast Sulawesi, Indonesia). *Singapore Journal of Tropical Geography*, 42(1), 132-148. doi:10.1111/sjtg.12349
- Medard, M., & Geheb, K. (2001). Fisheries co-management in the Tanzanian sector of lake victoria. Retrieve from:
<https://dlc.dlib.indiana.edu/dlc/bitstream/handle/10535/5593/Fisheries%20co%20management%20in%20the%20tanzanian%20sector.pdf?sequence=1&isAllowed=y>
- Medard, M., Sobo, F., Ngatunga, T., & Chirwa, S. (2002). Women and gender participation in the fisheries sector in Lake Victoria.
- Mitra, S., Dangwal, R., & Thadani, L. (2008). Effects of remoteness on the quality of education: A case study from North Indian schools. *Australasian Journal of Educational Technology*, 24(2).
- Mohd, S. (2014). Poverty issues among Malaysian elderly. *Proceeding of the Social Sciences Research ICSSR*.
- Morris, M., Staritz, C., & Barnes, J. (2011). Value chain dynamics, local embeddedness, and upgrading in the clothing sectors of Lesotho and Swaziland. *International Journal of Technological Learning, Innovation and Development*, 4(1-3), 96-119.
- Morrison, A., & Morrison, A. R. (2007). Gender equality, poverty and economic growth.
- Mukaila, R., Falola, A., Akanbi, S. U. O., Aboaba, K. O., & Obetta, A. E. (2022). Drivers of Poverty among Rural Women in Nigeria: Implication for Poverty Alleviation and Rural Development. *Journal of Rural and Community Development*, 17(1).
- Nagaraj, S., Lee, K. H., Goh, K. L., & Tey, N. P. (2017). Malaysian adolescents not in school: The nexus of education, work and gender. *Malaysian Journal of Economic Studies*, 53(1), 87-113. National Partnership for Women and Families (2018)
- Ninawe, A. S., & Diwan, A. D. (2005). Women in the fisheries sector and entrepreneurship development: steps for improvement. *Women Empowerment in Fisheries*, 1-16.
- Obetta, A. E., Mukaila, R., Onah, O. G., & Onyia, C. C. (2020). Challenges of melon processing among women processors in Enugu-Ezike Agricultural Zone of Enugu State, Nigeria. *Turkish Journal of Agriculture-Food Science and Technology*, 8(11), 2421-2425.
- OECD (2019), "Old-age income poverty", in Pensions at a Glance 2019: OECD and G20 Indicators, OECD Publishing, Paris. DOI: <https://doi.org/10.1787/fb958d50-en>
- Ogunlela, Y. I., & Mukhtar, A. A. (2009). Gender issues in agriculture and rural development in Nigeria: The role of women. *Humanity & social sciences Journal*, 4(1), 19-30.
- Ordanini, A., & Parasuraman, A. (2011). Service innovation viewed through a service-dominant logic lens: a conceptual framework and empirical analysis. *Journal of Service Research*, 14(1), 3-23.
- Osman, M. M., Bakri, N. I. M., Bachok, S., Ibrahim, M., & Mohamed, M. Z. (2015). Assessing social welfare department service delivery system towards vulnerable and disadvantaged groups in Malaysia: a case study of Perak. *Procedia Environmental Sciences*, 28, 418-426. doi: 10.1016/j.proenv.2015.07.051
- Porter, M. (2012). Why the coast matters for women: a feminist approach to research on fishing communities. *Gender in Aquaculture and Fisheries: Moving the Agenda Forward*, 7359.
- Ramchandran, C., & Fisheries, M. (2011). A Sea of One's Own. *Yemaya Issue*, (38).

- Reantaso, M. (2012). Mainstreaming gender in fisheries and aquaculture: A stock-taking and planning exercise. *FAO Aquaculture Newsletter*, 50, 10-11.
- Rota, A., & Sperandini, S. (2010). Value chains linking producers to the markets. *Livestock thematic papers*, 1-12.
- Saidi, N., Zainalaludin, Z., & Jamaluddin, A. (2021). Gender Analyses on the Vulnerability Types Suffered by Poor and Older Freshwater Fisheries Community Members in Peninsular Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 11(12), 2046–2069. DOI:10.6007/IJARBS/v11-i12/11935
- Salim, R., Nurdin, M. F., Sekarningrum, B., & Prengki (2017). The Role of Islam toward the Patriarchal Culture in Malay People. *Sociology and Anthropology* 5(12): 1027-1032. DOI: 10.13189/sa.2017.051207
- Salmi, P., & Sonck-Rautio, K. (2018). Invisible work, ignored knowledge? Changing gender roles, division of labour, and household strategies in Finnish small-scale fisheries. *Maritime Studies*, 17(2), 213-221.
- Santoso, S., Soehari, T. D., Aprianto, Y., Andrian, D., & Henny, H. (2020). Value creation in fisheries supply chain as a role model for fish protein hydrolyzate cluster development. *Jurnal Rekayasa Mesin*, 11(3), 401-407.
- Satapornvanit, A. N. (2018). The importance of gender in fisheries: The USAID Oceans experience. *Fish for the People*, 16(2), 9-13.
- Shah, M., Hasan, S., Malik, S., & Sreeramareddy, C. T. (2010). Perceived stress, sources and severity of stress among medical undergraduates in a Pakistani medical school. *BMC medical education*, 10(1), 2.
- Shahbaz, B., Naz, M., Umer, S., & Amir, R. M. (2017). Determinants of women's empowerment and poverty reduction: a case study of rural Faisalabad, Punjab. *Pakistan Journal of Agricultural Sciences*, 54(1).
- Sharma, N., Chakrabarti, S., & Grover, S. (2016). Gender differences in caregiving among family-caregivers of people with mental illnesses. *World Journal of Psychiatry*, 6(1), 7.
- Season, I., Tech, E., Matics, K. I., Choo, P. S., Shariff, M., Heruwati, E. S., ... & Sunderarajan, M. (2002). Women in fisheries in Asia.
- Singh, P., Arba, A. R., & Teoh S. H. (2010) Languages and Mathematics Achievements among Rural and Urban Primary Four Pupils: A Malaysian Experience. *Journal of Science and Mathematics Education in Southeast Asia*, Vol. 33 No. 1, pp. 65-85
- Solaymani, S., & Kari, F. (2014). Poverty evaluation in the Malaysian fishery community. *Ocean & Coastal Management*, 95, 165-175
- Suryanto, T., Haseeb, M., & Hartani, N. H. (2018). The correlates of developing green supply chain management practices: Firms level analysis in Malaysia. *International Journal of Supply Chain Management*, 7(5), 316.
- Thandar, M., Moe, H. H., & Naing, W. (2020). Women's empowerment among married women aged 15 to 49 in Myanmar. *Asia-Pacific Sustainable Development Journal*, 26(2), 57-81.
- Toff, B., & Palmer, R. A. (2019). Explaining the gender gap in news avoidance: "News-is-for-men" perceptions and the burdens of caretaking. *Journalism Studies*, 20(11), 1563-1579.
- Torre, J., Hernandez-Velasco, A., Rivera-Melo, F. F., Lopez, J., & Espinosa-Romero, M. J. (2019). Women's empowerment, collective actions, and sustainable fisheries: lessons from Mexico. *Maritime Studies*, 18(3), 373-384

- U.N. Women. (2020). Promoting women's economic empowerment in the Indian Ocean Rim. *A Baseline Report*.
- Unit Penyelarasan Pelaksanaan Jabatan Perdana Menteri (ICU JPM). (2021). Laporan Tahunan ICU JPM Tahun 2021
- Wahab, M. A. A., Ghani, N. A., & Yusof, H. (2018). Initial Discussion on the Past Studies of Well-Being. *International Journal of Academic Research in Business and Social Sciences*, 8(5), 74-86. DOI: 10.6007/IJARBSS/v8-i5/4086
- Walker, B., Redmond, J., Sheridan, L., Wang, C., & Goeft, U. (2008). Small and medium enterprises and the environment: barriers, drivers, innovation and best practice: A review of the literature.
- Weeratunge, N., Snyder, K. A., & Sze, C. P. (2010). Gleaner, fisher, trader, processor: understanding gendered employment in fisheries and aquaculture. *Fish and Fisheries*, 11(4), 405-420.
- Wei, W., Sarker, T., Żukiewicz-Sobczak, W., Roy, R., Alam, G. M., Rabbany, M. G., ... & Aziz, N. (2021). The influence of women's empowerment on poverty reduction in the rural areas of Bangladesh: Focus on health, education and living standard. *International journal of environmental research and public health*, 18(13), 6909.
- Widihastuti, R., & Zulham, A. (2019). The Role of Fishermen's Wife in Improving Family Welfare (Case Study in Majapahit Village, South Buton Regency). *Journal of Science, Technology and Innovation Policy*, 5(2), 19-23.
- Williams, M. J. (2008). Why look at fisheries through a gender lens? *Development*, 51(2), 180-185.
- Williams, M. J. (2012). Shining a light on gender in aquaculture and fisheries: report on the 3rd Global Symposium on Gender in Aquaculture and Fisheries. *SPC Women in Fisheries Information Bulletin*, 22.
- Williams, M. J., Porter, M., Choo, P. S., Kusakabe, K., Veikila V., Nikita G., & Melba B. (2012). Gender in aquaculture and fisheries: Moving the agenda forward. *Asian Fisheries Science*, 25
- World Bank. (2010). Malaysia Economic Monitor, Inclusive Growth. World Bank: Bangkok Thailand
- World Bank. (2018). Understanding Poverty. Available online: [http://www.worldbank.org/en/topic/poverty/ Overview](http://www.worldbank.org/en/topic/poverty/Overview)
- World Health Organization. (2010). Poverty, social exclusion and health systems in the WHO European Region. *WHO Regional Office for Europe*.
- Yahaya, J. (2001). Women in small-scale fisheries in Malaysia. In International Symposium on Women in Asian Fisheries. *Fifth Asian Fisheries Forum. 13 November 1998. Chiang Mai, Thailand. Williams, M. J., M. C. Nandeesh, V. P. Corral, E. Tech and P. S. Choo (eds.). 156pp*
- Yeo, B. H. (2007). Fisher profiles and perceptions of sea turtle-fishery interactions: case study of East Coast Peninsular Malaysia (Vol. 6). *WorldFish*
- Yuliandi, S., Sabri, M. F., Rahim, H., & Osman, S. (2018). The mediation effect of self-coping mechanism between financial strains and financial security of single mothers in Malaysia. *Malaysian Consumer and Family Economics Association*, 21, 102-123.
- Zainalaludin Z. (2012). Scaling up rural micro-enterprises: Profiles of owners in Peninsular Malaysia. *Pertanika Journal of Social Sciences & Humanities*, 20(4), 1049-1064
- Zainalaludin, Z., Saidi, Ahmad, N., Jaafar, J. N., & Akim, M. A. (2022). Socioeconomic Determinants of High Empowered CSO Leader by Age Categories among Rural Women

in Malaysian Fisheries Community. *Malaysian Journal of Consumer and Family Economics*. Vol 29. Page 508-538

Zhao, M., Tyzack, M., Anderson, R., & Onoakpovike, E. (2013). Women as visible and invisible workers in fisheries: A case study of Northern England. *Marine Policy*, 37, 69-76.