

Living with multiple stressors: The story of small-scale fishers' wives in Indonesia

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Abstract

Fishing is widely recognised as one of the world's most hazardous and male-dominated occupations. Daily uncertainty, fluctuating income and exposure to multiple stressors mark the livelihoods of small-scale fisher families. While fishermen face the risks of physical danger and seasonal instability, their wives often bear the hidden burden of sustaining the household's social and economic stability. This study aims to: (1) identify the multiple stressors experienced by small-scale fishers' wives in Indonesia; (2) examine the coping strategies they employ to sustain family well-being; and (3) explore how they perceive an ideal fishing family. The study was conducted among fishers' families in three regencies of Indonesia: Demak in Central Java Province, Tapanuli Tengah in North Sumatra and Kepulauan Sula in North Maluku. Data collection took place between September 2020 and March–May 2021, using both quantitative and qualitative approaches, with adjustments made due to COVID-19 restrictions, including virtual focus group discussions and interviews. Descriptive analysis was applied to quantitative data and thematic analysis guided the qualitative findings. Our study shows despite the men's central roles in fishery, when families are facing significant stressors, it is the women who are in charge of keeping the family's functions. The burdens on the fishermen's wives are multiplied, especially during the COVID-19 pandemic, highlighting the importance of recognising women's adaptive capacity in ensuring household resilience and gender-responsive coastal policies.

Keywords: COVID-19, family resilience, family stressor, fisherman wives, multiple stressors

Introduction

All over the world, especially in developing countries, fishing families, particularly small-scale fishers, are among the most vulnerable socio-economic groups. It is known that small-scale fishermen are very sensitive and less adaptive to the effects of high wave season and extreme weather. The fish-catching operations heavily depend on the ocean's climate conditions and most small-scale fishers lack the technology, physical resources and financial capital necessary to support their fishing activities. As weather can rapidly change and be more severe than what was

forecasted, small-scale fishers are very prone to vulnerability associated with the presence of uncertainties and inherent risk daily (Béné & Friend, 2011; Martin et al., 2013; Paul et al., 2020). These include loss of income for a certain period or even a family member.

In many societies, women are not allowed to fish (Deb et al., 2015; Mupindu, 2012; Thompson, 1985). Women involvement in fishery is limited only to post-harvest activities (David, 1989; Megbowo et al., 2010; Solano et al., 2021). Therefore, women's contribution in fisheries communities is often overlooked. Recently, women contributions on capture fisheries in all sectors of activities have been emergingly recognized (Harper et al., 2017; Nunan & Cepić, 2020; Sriputinibondh et al., 2005; UN Women, 2020). Building on this growing body of research, studies from Indonesia and elsewhere reveal that women's roles extend beyond domestic domains. They contribute to post-harvest processing, marketing and in some cases direct fishing alongside their husbands (Anna, 2012; Handajani et al., 2016).

Nevertheless, whether a woman is involved in the fishing activities, a fisher's plays a major role in maintaining the household. The nature of fishing force a fisher to endure long working hours away from their families. Consequently, a fisher's wife has to runs most of the household, does many odd jobs and household chores herself. Thus, in contrast to traditional views, a fisher's wife is usually a very independent, strong woman who can deal with multiple tasks and stressors Managing financial uncertainty, worrying about her husband's safety, caring for children and maintaining family well-being are integral parts of her daily life. It is also very important for her to maintain a happy, warm and comfortable home, both for herself and her children, but it is equally important for the fisherman to know he has a safe home to return to.

As one of the world's largest archipelagic countries, many Indonesian families depend on ocean resources. Statistic indicates that 90 percent of Indonesian fishing households are involved in small-scales fishery activities (Kementerian Kelautan & Perikanan, 2020). Based on study among small-scales fisher's families in Indonesian coastal communities, this article focuses on the dynamic roles of women in small-scales fisher's families. These include exploring their daily activities, the uncertainty and multiple stressors they typically face, what strategies they employ to survive and how they perceive an ideal fishing family.

Women roles in the fishing family: Previous studies

Previous studies showed that the role of women is very important in family management as well as in coastal community (Arenas & Lentisco, 2011; Budiarto et al., 2020; Handajani et al., 2016; Weeratunge et al., 2010). The division of labour among fisher families is generally gendered: most domestic work remains the women's responsibility, while catching fish is the men's task. Yet, beyond this division, women often assist their husbands in fish processing and marketing, given their greater negotiating capacity and social networks (Handajani et al., 2016; Fitriana & Stacey, 2012). In certain contexts, women also accompany their husbands in fishing activities, especially when family labor is limited (Anna, 2012).

Fishing families are vulnerable to various stressors that affect their livelihoods and well-being. They often experienced risks such as uncertainty of production, environmental fluctuations, access to fish resources, price risk from unstable supply conditions and the risk of losses on assets held and even risking their lives on the sea conditions (Crona & Bodin, 2010; Islam et al., 2014). Several studies revealed that coastal ecosystems are impacted by many drivers of change, including overfishing, intensifying tourism and real estate speculation, out-migration and

immigration, competition with large-scale fisheries, climate change, and degradation of terrestrial and marine ecosystems. A number of these drivers' changes may directly affect small-scale fisher livelihoods (Badjeck et al., 2010; Hanazaki et al., 2013; Jentoft, 2007).

Furthermore, a study in the north of Central Java indicated that coastal communities, especially small-scale fisheries, are challenged by uncertainties of natural resources and socio-economic forces (Fauzi & Anna, 2010). When the families are having extreme stressors such as natural disasters, earthquakes, or tsunamis, their capability of adaptation would be weakened. Pomeroy study shown that the impact of tsunami disaster has affected low-income families more severely than other groups due to limited resources. Some families were able to adapt and diversify their livelihoods after the tsunami, but for families with low income, the situation has worsened and they are unable to adapt (Pomeroy et al., 2006).

When facing multiple stressors, fisher families often develop adaptive strategies, such as job diversification, shifting fishing gear, relying on social networks, or temporarily leaving the fishery sector altogether (Coulthard, 2012; Deswandi, 2017; Pomeroy et al., 2006). Adaptation in the form of job diversification, for example, by maximizing the role of family members to meet their daily needs. The wife and adult children often help the head of the family to carry out the business of processing catches, making and repairing nets, or even trading for other jobs not related to fisheries (Coulthard, 2012; Deswandi, 2017; Fitriana & Stacey, 2012; Mbani et al., 2020; Purwanto, 2013; Wekke & Cahaya, 2015). The multiple stressors identified in the literature are summarised below:

Table 1. Multiple stressors affecting small-scale fishers' wives

Author(s)	Year	Region	Identified stressors	Notes
Béné & Friend	2011	Global	Weather variability, income loss	Climate uncertainty and livelihood risk
Crona & Bodin; Islam et al.	2010 2014	SE Asia	Production risk, loss of assets	High exposure to economic shocks
Badjeck et al.; Hanazaki et al.	2010 2013	SE Asia, Brazil	Overfishing, migration, degradation	Environmental and social drivers
Handajani et al.; Anna	2012 2016	Indonesia	Women's unpaid labor, workload	Gendered division and adaptation
Pomeroy et al.	2006	SE Asia	Post-disaster impact	Limited adaptive capacity among poor families
Conway & Cramer	2018	Global South	Family dependency, resilience gap	Female participation improves adaptation

Adaptation efforts by fisherwomen include adjusting the duration of fishing according to seasonal conditions, cutting non-essential expenses, diversifying livelihoods, processing marine products and sending family members often women to work abroad (Anna, 2012). Households that engage female members in income-generating activities tend to demonstrate stronger adaptive capacity (Conway & Cramer, 2018). However, exposure to prolonged stressors such as natural disasters, debt, or economic uncertainty can still erode their resilience. Overall, these findings highlight that gender dynamics play a crucial role in shaping household adaptation within small-scale fisheries.

Therefore, this study aims to identify the multiple stressors experienced by small-scale fishers' wives in Indonesia, to examine the coping strategies they employ to maintain family well-being and to explore how they perceive the notion of an "ideal fishing family" amid uncertainty.

Method and study area

The study was conducted in three coastal areas of Indonesia, namely Purworejo Village, Demak Regency, Central Java Province; Sula Island Regency, North Maluku Province; and Central Tapanuli Regency, North Sumatra Province. These three locations represented the eastern, central and western parts of Indonesia (Figure 1). The total population of these three locations is 104,082 persons (BPS Kepulauan Sula, 2021). Sula Island Regency is one of the small islands located in the eastern part of Indonesia. This area is popular as a spice island and has had high potential in the fishery sector since the colonial period. Purworejo is one of the coastal villages located in the northern part of Java Island. The 2019 village statistics indicate that 87 percent of the village's total population (9,525 persons) are working in fishery-related occupations (Badan Pusat Statistik, 2019). The data also indicates that most of the fishermen are involved in small-scale fishery activities. Central Tapanuli Regency is located on the west coastline of Sumatra Island with a total population of 365,177 persons based on the 2010 Indonesian Census. This regency is also known to have high marine and fishery potential.

The information for this study, mainly collected in September 2020 and March–May 2021, utilised quantitative and qualitative approaches. It is part of a larger study on "Family and Society Resilience in Indonesia.". The quantitative data included a survey of 200 fisher households, with 100 households from Fukweu Village on Sula Island and 100 households from Tapan Nauli Village in Central Tapanuli. The households were selected purposively, with the criterion that only households headed by fishermen were included. The qualitative data consist of eight focus group discussions (FGDs) conducted with four groups of fishermen and four groups of fisherwomen or wives. Each FGD comprised four to five participants. The number of participants was deliberately limited to allow for more in-depth discussions and to encourage active participation from all members. In addition, open-ended interviews were carried out with 15 women and 8 men.

This study was planned before the COVID-19 pandemic struck. We planned to conduct focus group discussions and open-ended interviews with several participants related to the dynamics of the fishing family. Due to the COVID-19 pandemic in March 2020, Indonesia carried out a restricted activities policy, locally known as PSBB (*Pembatasan Sosial Berskala Besar*—Large Scale Social Restrictions), in several areas, including all provinces in Java. The field trips have to be cancelled and shifted to online-based data collection. In September 2020, we conducted a virtual focus group discussion (vFGD) in Purworejo. As Lobe et al. (2020) stated, the occurrence of this pandemic presents unique advantages and challenges, especially for qualitative researchers, where attachment between researchers is required. Unlike other studies that use virtual focus groups in which the participants are internet users and are able to participate from home (dos Santos Marques et al., 2020; Murgado-Armenteros et al., 2012; Wettergren et al., 2016), the majority of fishing communities in Purworejo have no adequate accessibility to the technology, such as smartphones and/or laptops and internet networks. Thus, the vFGD was conducted at the village office using our local assistant's laptop and village office internet facilities. Because we cannot control who might overhear the discussion, we limit the questions to general topics and avoid sensitive issues. Fortunately, in March 2021 we have the opportunity to visit Purworejo,

Sula Island and Central Tapanuli to obtain more comprehensive information. During data collection, the COVID-19 pandemic still existed; thus, to prevent virus transmission, we conducted all the FGDs and interviews outdoors and kept wearing masks during the interviews.



Source: Rupa Bumi Indonesia, 2020

Figure 1. Site location

Quantitative data obtained from household surveys were checked for completeness and consistency, followed by descriptive statistical analysis using SPSS. The analysis generated frequency distributions and cross-tabulations to identify patterns in household composition, gender roles and livelihood strategies. This quantitative component provided an overview of socio-demographic characteristics and complemented the qualitative findings.

Qualitative data from FGDs and open-ended interviews were transcribed verbatim and analysed using thematic analysis (Braun & Clarke, 2006). The process involved iterative coding, categorisation and theme development to identify recurring patterns related to stressors, coping strategies and gendered household dynamics. Coding was performed manually by two researchers to ensure inter-coder reliability and discrepancies were discussed until consensus was achieved. The triangulation of quantitative and qualitative results enhanced the validity of the findings and enabled a comprehensive understanding of women's adaptive roles within small-scale fishing families.

Thematic analysis of qualitative data produced three overarching themes that emerged inductively from the coding process: (1) fisherwives' daily activities and gendered division of labour; (2) uncertainty and multiple stressors in the fishery and household adaptation; and (3) women's perception of an ideal family. These themes reflect the dominant patterns and meanings that appeared consistently across interviews and FGDs, supported by illustrative quotations from participants.

Results and discussion

The following section presents the main findings of the study, drawing from both qualitative and quantitative data. The qualitative themes were developed inductively from the analysis of FGD and interview transcripts through a systematic process of open coding, categorisation and thematic clustering. During the coding stage, researchers identified repeated ideas and expressions related to women's everyday routines, sources of stress, coping mechanisms and family aspirations. These recurring patterns were then grouped and refined into three major themes that captured the essence of women's lived experiences in fishing families. Together, these themes illustrate how fisher wives interpret and respond to multiple stressors in their daily lives, balancing domestic responsibilities, economic pressures and emotional well-being. The discussion integrates narrative evidence from FGDs and interviews with descriptive survey results to provide a holistic understanding of women's adaptive roles across the study sites.

The fisher wives' daily activities

As previously discussed, compared with other women, fisher wives have more responsibility for households' chores and family management. These include domestic, economic and social activities. This situation is due to the nature of fishing activities, in which their husbands must work long and uncertain hours, depending on weather and the type of fish they catch. The absence of the husband at home has forced the wife to take over household head roles in the family's daily lives. Women in fisher families, whether or not they joined their husbands in fishing, started their days very early in the morning.

The qualitative data show that most women in this study started their days early in the morning, mostly at dawn. This is because they need to prepare meals for their husbands to bring, help prepare fishnets and walk the husband to the boat. Then, their domestic activities continue as they have to clean the house, do laundry, cook and take care of or send their children to schools. This situation also applies to women who accompanied their husbands fishing. As mentioned by one respondent in Purworejo village,

“... it's the same whether or not I go fishing; I have to wake up early, usually around 3 am. I have to prepare meals for both of us to bring and also for the children, then I have to clean the house and then I have to wake my husband up. We usually go to fish around 4 am, sometimes earlier. I am lucky to have my mother live nearby so I can ask her to help watch and prepare the children for school.” (Ow, mother of 2 children)

Almost all women who participated in the FGDs stated that it is “women's responsibility” to do all household chores, including taking care of children. Only when they were sick or feeling unwell would their husband help with doing housework. As stated by one of FGD's participants in Sula Island;

“When I am healthy, my husband would not care about “kitchen work”. He only willing to help with domestic chores when I am sick.” (NLG, age 38, married for 19 years)

The quantitative data also reflect similar results. The participants were asked, “How often do the family members do domestic work?” As shown in table 2, only 12 percent said the husbands

often (4-5 days a week) do household chores and none said very often (every day), while 18 percent and more than three times as many (79 percent) said that the wives often and very often do household chores. Although the proportion is higher than husbands, the children are also unlikely to do household chores. Only five percent said that their children very often do domestic chores and 38 percent said often. This information confirmed that the gender division of work, in which domestic work is women's, still exists among fisheries families in our study.

Table 2. Respondents in domestic works by household status in Sula Island and Central Tapanuli Regency (%)

Frequency	Households' status		
	Husband	Wives	Children
Never	37	2	32
Occasionally	51	1	25
Often	12	18	38
Very Often (every day)	0	79	5
Total (%)	100	100	100
N	200	192	381

Source: Primary data, 2021

In addition, the impact of the COVID-19 pandemic has increased the domestic burden on the women. When we conducted the fieldwork, due to the pandemic, most children had to study online, in which both students and their teachers were not familiar with the system. Parents are expected to help their children during the study and doing homework. Considering that most women in this study have limited education, this situation has added a significant burden for the women in our study.

Besides doing domestic chores, almost all women in this study are involved in economic activities, mostly as 'unpaid family workers,' such as mending fishing nets and other post-harvest activities. Several fisheries wives also work to help family economics, such as having a small stall at their house to sell snacks and daily needs such as sugar, coffee and cooking oil. Some women help to clean and sell the fish caught by their husbands. Other women who have farmlands said they are working as farmers. Many women, especially in Sula, are also helping their husbands in seaweed farming by doing jobs such as cutting and tying the seed on the rope. Interestingly, only a few women considered working as their main activity.

Table 3 shows household members aged ten years and above and their main activities in the week before the survey. The table indicates that less than a third (29 percent) of wives consider their main activity to be working. The quantitative data seems to not reveal women's involvement in the post-harvest fishing as economic activities. This may be caused by them not earning money for the job; thus, the activities were not considered as working.

Table 3. Main activities of households' member age 10 years above in Sula Island and Central Tapanuli Regency (%)

Households' status	Main activity				Percent (N)
	Working	Looking for work	Schooling	House wife/work	
Head of Household	100	0	0	0	100 (200)
Wife*	29	0.5	0.5	70	100 (269)
Son	28	18	52	2	100 (216)
Daughter	16	17	61	6	100 (161)

Note: * Some women choose more than one activity a housewife and other activities

Source: Primary data, 2021

It should be noted that the quantitative data presented in Tables 2 and 3 were collected from respondents in Sula Island and Central Tapanuli, while the qualitative data were obtained from all three study sites. The virtual focus group discussion (vFGD) in Demak complemented the in-person FGDs and interviews conducted in Sula Island and Central Tapanuli. Although the sites differ geographically, the nature of small-scale fishing livelihoods and household division of labor showed consistent patterns across locations. Demak was included as the qualitative focus from Java's northern coast, providing a useful comparative perspective that confirmed the similarity of women's domestic and economic roles observed in the eastern (Sula) and western (Tapanuli) sites. Therefore, the geographical differences are unlikely to have significantly influenced the findings of this theme.

While the quantitative findings reflect the general patterns observed across all locations, the qualitative insights from Demak provide richer descriptions of how women negotiate their daily responsibilities within the fishing household. A few women, mostly in one of the sub-villages in Demak, said they often accompany their husbands to fish, while none of the women in Sula Island and Central Tapanuli do so. Interestingly, when husbands were asked about their wives' involvement in catching fish, they were not happy. Most said if they had choices, they would prefer to leave their wives at home and taking care of the children, as most women do. One of the fishermen expresses his opinion:

“... actually, I am not happy to ask my wife to accompany me to fish. But I have no choice; I cannot fish by myself. It needs at least two persons, one to spread and pull the net and the other to control the boat. In this village almost all families are fishing and have at least one boat, so no man I can ask to help...”

Nevertheless, when fishing with the wife, the fishermen mostly said that they only catch fish nearby and only for a half day. Occasionally they would fish with other fishermen, at least three or four people using bigger boats to catch fish for at least three days or sometimes a week. As in most Indonesian societies, fisher families are also involved in many social activities, including attending extended family occasions, community gatherings and religious gatherings. Involvement in social activities, especially among extended family and neighborhood community, is very important for small-scale fishing families. Extended family and neighbors are often considered as support systems when a family is facing economic difficulties. Most women who

participated in the study said that they are regularly involved in at least two social activities, such as social gatherings, which Indonesians call ‘*arisan*,’ and women’s religious activities (women’s worship groups). ‘*Arisan*’ is a microfinance activity in the form of rotating savings and loans at certain intervals, usually monthly, carried out by a group of people. For many fishing families, ‘*arisan*’ were considered as one way of saving money in order to buy something expensive, such as a motorcycle or building and renovating houses.

The uncertainty and stressors in fishery: Women's views and adaptations

Similar to their counterparts in the fishing families of other countries (Béné & Friend, 2011; Martin et al., 2013), our study are facing various stressors and uncertainty that affect the socio-economic and physio-social condition of the family. Variability in natural resources manifested in bad seasons and fluctuation in fish catching has profound impacts on the livelihood of small-scale fishermen and coastal communities in the study areas. In FGDs among fishermen and fisherwomen/wives, the participants were asked about their opinion on the common stressor for fisher families. The participants mention various things, namely unpredictable weather, border fishing areas, inadequate catching technology, unstable fish prices, uncertainty of production, and environmental fluctuations.

For a small-scale fishing family, unpredictable weather could be the biggest stressor of their livelihood. The majority of small-scale fishers have only a small boat, so it will be very dangerous for them to fish during bad weather, including high tide and strong wind. During the strong winds and high tide season, many small-scale fishers choose not to fish until the weather is better. The higher the exposure to unpredictable weather, the greater the possibility of the small-scale fishermen having significant socio-economic vulnerabilities. One participant in the FGD among fishermen stated the following:

“During the high tide some of us cannot reach the fishing grounds because our boat and engine cannot pass through the strong wind, ... so we only catch fish near the shore. Other fishers could not fish at all during the high wave season.”

Very few small-scale fisher families have been able to save money regularly to anticipate bad weather. When asked how to cover their daily needs when they could not go fishing, most FGD participants said they would borrow some money. For the ‘small needs,’ they would borrow the money from extended family or neighbors and the loan would usually have no interest. While for the bigger needs, they would borrow from an ‘informal money lender’ locally known as “bank keliling” (“door-to-door banking”) with relatively high interest. Interestingly, when a family needs to borrow money, it is the wife who would go to find someone who might help. They said people would trust women more than men.

Apart from the economic impact of the unpredictable weather, high tide and strong wind always cause all the women in our study to worry for their husbands’ safety. Even though as fisher wives, they are aware of these risks that may happen, they are still worried. In an open-ended interview, one respondent said.

“Each time I notice there is heavy rain and strong wind at the sea and my husband has not returned, I always worry. Usually, I will wait for my husband at the

seashore, hoping to see my husband's boat soon. When that time happened, I did not care about the catch; the most important thing is my husband's safety."

Our study also reveals that when the fisher family is having a serious stressor, especially an economic stressor, all adult family members would take part to help. The father would likely go fishing for longer hours, and the adult son will join the father fishing. For those who have no adult son, then the wife will accompany the husband to go fishing. As mentioned earlier, in one sub-village of Purworejo, it is common for a woman to go fishing with her husband.

Other stressors regarding the social context found from our study are alcohol and drug consumption, especially among young people. These problems were mentioned by participants in all locations of our study. An increase in drug consumption is becoming a major concern. In an FGD among fisherwomen and/or wives, one participant told her experience when her family had multiple stressors two years before the interview.

"... the multi-stressor that I could not forget was when I heard that my son was in the police office for drug use. My son studied at a religious boarding high school out of the village, so I did not see him daily. At that time, my husband was already a bit depressed because he could not go fishing due to the bad weather. At first, I did not tell my husband about our son's problem. When the police ask the parent to come to the police office, I have to borrow money from my relatives. I told my husband about our son's problem a week after; my son has to be sent to a rehabilitation center for three months."

Another stressor that was raised only in FGDs among fisher wives is "husband might have another woman." In the FGDs, the participants were asked what the biggest worry for them is in regard to their family; almost all women said, "Husband has another woman." This issue is mostly raised by women whose husbands have to fish for a relatively long time, usually three to six days or sometimes weeks. However, when the same question was asked in the FGD among fishermen, the men mostly responded with "how to provide for their family needs and provide good education for their children".

Woman perceives of an ideal family

When the women in our study were asked, "What is the ideal family for them?" None of them could answer easily. The common answer would be "a healthy and prosperous family," and then some women added "a faithful husband." Then when asked further what they would hope for their children, all women answer spontaneously, "not to be fishermen like their father or marry fishermen like their mother."

The skills of a fisherman are simple and almost completely learned from generation to generation. Interestingly, even though all fishermen teach their sons to fish, most of them said that they do not want their children to be fishermen. All fishermen in our study wish they were able to provide good education for their children. They hope with good education, their children will be able to find work outside the fishery. Despite their limited education, most fisher families in our study believe that education will help their children to live better than their parents. When asked why they want their children to have higher educations, almost all said, "[To make my children]

not to be fishermen, I believe having a good education, my children will have more choices in finding jobs other than fishery”.

Unlike in the past, working in the sea as a fisherman is no longer a favorite occupation among the people in our study. Working as a fisherman is considered tiring and demanding with low income. They believe that catching fish is becoming more difficult due to the declining fishing resources and unstable climate and more dangerous with increasingly severe storms. They would not like to see their children take such risks. In one open-ended interview, a fisherman respondent who has no son but 2 daughters said that he would not approve if his daughters married fishermen.

Similar views were also shared by the women in this study. The woman said, “It is enough for me to have a husband as a fisherman; I hope none of my children have a living like we are having now. I want my children to have a better life than us.” Small-scale fisher families are often considered as people who always have difficulty accessing education and health, which causes their standard of living to be low (Anna et al., 2019). Thus, it is not surprising to find out that most women in this study are hoping that their children have better education than their parents. The results of the interview show that the fishermen in Purworejo village are gradually aware that to get out of poverty is to pursue education.

Conclusion

Our study shows that, similar to other fisher wives in other parts of Indonesia, most of the women in our study are multitaskers. When the family is facing multiple stressors, it is the wife who would be expected to find the solution. The most significant stressor faced by small-scale fishers is the weather, which has recently become more unpredictable. This has affected their income as well as threatening the life of a family member. In the situation where the family income is limited, a fisher wife is expected to find a way to cover the family’s expenses. Most women will borrow money from various resources, including extended family, neighbors, moneylenders and banks. Women in our study believe that working as fishers in small scale continuously will face multiple stressors and they believe education is one of the ways to get rid of poverty. Unlike the traditional view that among small-scale fisher families, education is not important, all fishers’ parents in our study said that providing education for their children is the most important thing in their life.

The study results provide information on the importance of women’s roles in small-scale fisher families, especially when facing multiple stressors. Thus, raising awareness on gender equality issues in the fisheries sector becomes more significant. Improving women's knowledge on family management, fisheries administrators, fishers, processors and fishing managers is important for women in achieving empowerment, which in turn will improve their family quality of life. This study limits the discussion on fishers’ parents, especially women and has few discussions on fishers’ children on the issues. Further study needs to be conducted to obtain more comprehensive information on fishers’ children’s views on fisheries and education.

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References

- Anna, Z. (2012). The role of fisherwomen in the face of fishing uncertainties on the North Coast of Java, Indonesia. *Asian Fisheries Science*, 25S, 145–158.
- Anna, Z., Yusuf, A. A., Alisjahbana, A. S., Ghina, A. A., & Rahma. (2019). Are fishermen happier? Evidence from a large-scale subjective well-being survey in a lower-middle-income country. *Marine Policy*, 106, 103559.
- Arenas, M. C., & Lentisco, A. (2011). *Mainstreaming Gender into Project Cycle Management in the Fisheries Sector*. FAO.
- Badan Pusat Statistik. (2019). Kecamatan Bonang dalam Angka 2019.
- Badjeck, M. C., Allison, E. H., Halls, A. S., & Dulvy, N. K. (2010). Impacts of climate variability and change on fishery-based livelihoods. *Marine Policy*, 34(3), 375–383.
- Béné, C., & Friend, R. M. (2011). Poverty in small-scale fisheries: Old issue, new analysis. *Progress in Development Studies*, 11(2), 119–144.
- BPS Kepulauan Sula. (2021). Kabupaten Kepulauan Sula dalam Angka 2021.
- Budiarto, H., Suharso, P., & Kantun, S. (2020). Creative behavior of fisherman wives in the pesisir Village of the District Besuki-Situbondo. *IOP Conference Series: Earth and Environmental Science*, 485, 012079.
- Conway, F. D. L., & Cramer, L. A. (2018). Resilient Fishing Families and Communities: Adapting to Change. In L. Price, N. Narchi (Eds.) *Coastal Heritage and Cultural Resilience*. Springer, Cham.
- Coulthard, S. (2012). Can we be both resilient and well, and what choices do people have? Incorporating agency into the resilience debate from a fisheries perspective. *Ecology and Society*, 17(1), 4.
- Crona, B., & Bodin, Ö. (2010). Power asymmetries in small-scale fisheries. *Ecology and Society*, 15(4), 32.
- David, G. (1989). The role of women in post-harvest fisheries activities in Vanuatu. *SPC Fisheries Newsletter*, 50, 23–28.
- Deb, A. K., Haque, C. E., & Thompson, S. (2015). ‘Man can’t give birth, woman can’t fish’: Gender dynamics in the small-scale fisheries of Bangladesh. *Gender, Place and Culture*, 22(3), 305-324.
- Deswandi, R. (2017). A Case Study of Livelihood Strategies of Fishermen in Nagari Sungai Pisang, West Sumatra, Indonesia. In G. Shivakoti, U. Pradhan, H. Helmi (Eds.), *Redefining Diversity and Dynamics of Natural Resources Management in Asia* (volume 4, p. 45-60). Elsevier.
- dos Santos Marques, I. C., Theiss, L. M., Johnson, C. Y., Mclin, E., Ruf, B. A., Vickers, S. M., Fouad, M. N., Scarinci, I. C., & Chu, D. I. (2020). Implementation of virtual focus groups for qualitative data collection in global pandemic. *The American Journal of Surgery*, 221(5), 918-922.
- Fauzi, A., & Anna, Z. (2010). Social resilience and uncertainties: The case of small-scale fishing households in the North Coast of Central Java. *Maritime Studies (MAST)*, 9(2), 55–64.

- Fitriana, R. I. A., & Stacey, N. (2012). The role of women in the fishery sector of Pantar Island , Indonesia. *Asian Fisheries Science*, 25, 159–175.
- Hanazaki, N., Berkes, F., Seixas, C. S., & Peroni, N. (2013). Livelihood diversity, food security and resilience among the Caiçara of Coastal Brazil. *Human Ecology*, 41(1), 153–164.
- Handajani, H., Relawati, R., & Handayanto, E. (2016). Peran gender dalam keluarga nelayan tradisional dan implikasinya pada model pemberdayaan perempuan di kawasan pesisir Malang Selatan. *Jurnal Perempuan dan Anak*, 1(1), 1–21.
- Harper, S., Grubb, C., Stiles, M., & Sumaila, U. R. (2017). Contributions by women to fisheries economies: Insights from five maritime countries. *Coastal Management*, 45(2), 91–106.
- Islam, M. M., Sallu, S., Hubacek, K., & Paavola, J. (2014). Vulnerability of fishery-based livelihoods to the impacts of climate variability and change: Insights from coastal Bangladesh. *Regional Environmental Change*, 14(1), 281–294.
- Jentoft, S. (2007). In the power of power: The understated aspect of fisheries and coastal management. *Human Organization*, 66(4), 426–437.
- Kementerian Kelautan dan Perikanan. (2020). Kementerian Kelautan dan Perikanan. <https://kkp.go.id/djpdspkp/page/2202-realisis-investasi-sektor-kelautan-dan-perikanan>
- Lobe, B., Morgan, D., & Hoffman, K. A. (2020). Qualitative data collection in an era of social distancing. *International Journal of Qualitative Methods*, 19.
- Martin, S. M., Lorenzen, K., & Bunnefeld, N. (2013). Fishing farmers: Fishing, livelihood diversification and poverty in Rural Laos. *Human Ecology*, 41(5), 737–747.
- Mbani, R., Rusli, M., & Tawulo, M. A. (2020). Peran gender dalam keluarga nelayan: Studi di Kelurahan Lapulu Kecamatan Abeli Kota Kendari. *Gemeinschaft: Jurnal Masyarakat Pesisir Dan Perdesaan*, 2(1), 39–44.
- Megbowo, I., Adewolu, M. A., Ozor, P. O., Ayo-Olalusi, C., Okunade, O. A., Mojekwu, T. O., AYORINDE, O. A., & KOLADE, O. Y. (2010). Role of women in fisheries and fish processing: A global view. 5th Annual International Conference and Exhibition in Administrative Staff College of Nigeria (ASCON), 640–648.
- Mupindu, S. (2012). Assessment report on the role and situation of women in Lake kariba fisheries.
- Murgado-Armenteros, E. M., Torres-Ruiz, F. J., & Vega-Zamora, M. (2012). Differences between online and face to face focus groups, viewed through two approaches. *Journal of Theoretical and Applied Electronic Commerce Research*, 7(2), 73–86.
- Nunan, F., & Cepić, D. (2020). Women and fisheries co-management: Limits to participation on Lake Victoria. *Fisheries Research*, 224, 105454.
- Paul, T. T., Salim, S. S., S, M., Sarkar, U. K., & Das, B. K. (2020). Understanding variations in socio-economic vulnerabilities and the strategies adopted by small scale fishing communities of tropical reservoirs. *Fisheries Research*, 226, 105523.
- Pomeroy, R. S., Ratner, B. D., Hall, S. J., Pimoljinda, J., & Vivekanandan, V. (2006). Coping with disaster: Rehabilitating coastal livelihoods and communities. *Marine Policy*, 30(6), 786–793.
- Solano, N., Lopez-Ercilla, I., Fernandez-Rivera Melo, F. J., & Torre, J. (2021). Unveiling Women's Roles and Inclusion in Mexican Small-Scale Fisheries (SSF). *Frontiers in Marine Science*, 7, 617965.
- Sriputinibondh, N., Khumsri, M., & Hartmann, W. (2005 November 15-17). Gender in fisheries management in the Lower Songkhram River Basin in the northeast of Thailand. Proceedings of 7th Technical Symposium on Mekong Fisheries Ubon Ratchathani, Thailand.

- Thompson, P. (1985). Women in the Fishing: The roots of power between the sexes. *Comparative Studies in Society and History*, 27(1), 3–32.
- UN Women. (2020). Women ' S Economic Empowerment in Fisheries in the Blue Economy of the Indian Ocean Rim.
- 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.
- Wekke, I. S., & Cahaya, A. (2015). Fishermen poverty and survival strategy: Research on poor households in Bone Indonesia. *Procedia Economics and Finance*, 26(15), 7–11.
- Wettergren, L., Eriksson, L. E., Nilsson, J., Jervaeus, A., & Lampic, C. (2016). Content analysis of online focus group discussions are a valid and feasible mode when investigating sensitive topics among young persons with a cancer experience. *JMIR Research Protocols*, 5(2), e86.