

Nature of *Dadon* and Its Effect on Livelihood Status of Two Fishing Communities in Kishoreganj Haor of Bangladesh

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Abstract

To assess the nature and effect of *dadon* (a non-institutional financing way, built upon a verbal contract between the fishers and the money lenders/*mohajons*, which is paid back by harvested fish at predetermined lower price, along with 5-10% cash interest) on livelihood status of two fishing communities in Kishoreganj haor, a 12-month study was conducted among the 6 fish landing centers (FLC) under 5 haor upazilas of Kishoreganj district of Bangladesh, viz., Chamra Ghat *Matshaya Arat* of Karimganj *Upazila*, Chouganga *Matshaya Arat* of Itna *Upazila*, Tarail *Matshaya Arat* of Tarail *Upazila*, Korgaon bazar *Matshaya Arat* of Kotiadi *upazila*, Nikli *Notun Bazar Matshaya Arat* and Rodar Podda *Matshaya Arat* of Nikli *Upazila*, from August 2018 to July 2019. One hundred twenty interviewees, of which 60 fishermen from *dadon* receiver (DR) and 60 from *dadon* non-receiver (DnR), were randomly selected from 6 landing centers by using pre-tested questionnaire interview and focus group discussion to collect empirical data. Results revealed that, about 50% fishermen received *dadon*, of which 42% took *dadon* from *aratdar*, 4% from *mahajon* and 4% from the relatives or friends. The rate of commission in *arat* was comparatively lower than the other credit sources. The commission rate taken by *aratdar* was higher in DR (5.9-8.5%) compared to DnR (3.9-5.69%). In addition, about 2.81%-3.6% and 1.69%-3% extra commission was taken from DR and DnR, respectively by the people of *aratdar* during auction of fish. Results revealed that *dadon* was taken for both fishing purposes (56.83%) and household purposes (43.17%) and most of the *dadon* (58%) was repaid by the beginning of next fishing season. There was no difference of commission observed due to species, size and quality of fish between DR and DnR fishermen. Monthly income and annual savings were comparatively higher in DR fishermen than DnR fishermen. Educational status was comparatively better in DR fishermen than DnR fishermen ($p < 0.05$). Total land and homestead area, electricity, kitchen and sanitation facilities, as well as home condition were comparatively better in DR fishermen compared to DnR fishermen ($p < 0.05$). On the other hand, livelihood improvement status, as perceived by the fishermen, was better in DnR compared to DR fishermen ($p < 0.05$). Mobility and ability to make small purchase of women were comparatively better in DnR household than DR ($p < 0.05$). However, in terms of family decision making for children education, treatment and marriage and economic security, the women from DR fishermen were better empowered. Overall, the DR fishermen were found to led comparative better life than DnR fishermen.

Keywords

Dadon, fishermen, livelihood, social well-being, women empowerment, Kishoreganj haor

1. Introduction

The term “*dadon*” comes from the Persian word means “to give”, and then developed into a technical term for loans as working capital in Bengal [1]. In the last half of the 17th century, most products were secured by the *dadon* system for long distance trade, and the onward demand for products along with the extent of European trade primarily led to the augmentation of *dadon*. By the end of the 18th century and the beginning of the 19th, the British East India Company had excluded the *dadon* system from most divisions of export trade [2, 3].

In Bangladesh, presently the sources of rural credit can be classified into two groups. One is a formal or institutional source largely encompassed of banks and NGOs. The other source is generally called informal or non-institutional loans as *dadon*, mostly taken from *aratders*, *mohajons*, money lenders, friends/relatives, traders, land-owners, etc. [4].

In rural areas, fishermen have limited access to the formal or institutional credit system (i.e., banks or NGOs) due to scarce collateral and mortgage properties, like landed or household property. However, fishermen in *haor* areas are largely dependent on informal credit systems, like the *dadon* (interest-based loan) system. *Dadon* is a non-institutional bankrolling way, build upon a verbal agreement between the fishermen and the rich and influential people like money lender or *aratdars* (called *dadondar*). *Aratdars*/money lenders are at the core of the financial system of the fish market in *haor* areas, in that they finance both backward and forward linkages. By taking a loan, the *dadon* receivers are bound to sell their harvested fish to *aratdar*/money lender, who profits in the form of a commission (i.e. about 5% to 10% from fresh fish, and 2% from dried fish) when selling to the third one [5, 6]. At the same instance, the *aratdars*/money lenders take risks, as the credit receivers can make financial losses, or “disappear” altogether.

Money lending system in rural area (*dadon*) and a related oppressive patron-client relationship is deeply entrenched in *haor* fishing areas. Non-government microcredit organizations (NGOs) usually do not consider fishers eligible for micro-credit advances as per need for fishing operations, because fishing as a profession is full of risk and uncertainty. Fishers have very limited access to government commercial or specialized banks as they fail to satisfy the requirements for a mortgage and an extra ‘speed money’ (bribe) required for a loan. The moneylenders, despite their exploitative roles, operate within the vacuum of socio-cultural, economic and political spaces. The amount of loans varied from a few thousand to several lac taka; interest rates against loan varied from 3-5% per auction at *arat* (compared to 15% in the commercial banks) in *haor* areas. Poor fishers exhaust themselves in paying interest. In return, fishers get social security from the money lenders. Hindu fishers usually receive ‘*dadon*’ from the same-caste money lenders if the amount is small, but the Hindu boat owners (who are again money lenders within their community) consider it safe to receive ‘*dadon*’ from the Muslim *aratdars*, whom they consider as ‘powerful persons’, with a view to protect their fishing assets and to get ‘social security’ in the event of communal violence.

Fishers are the principal stakeholder in the fisheries sector. During fishing season, fishers need money for preparations, net mending, the maintenance of boats and engines, as well as for subsistence [5]. Money is given off trust rather than by written document or for collateral property. This relationship between *dadondar* and *dadon* receiver, means proper and timely marketing and payments for his products (even though the predetermined lower price). In addition, fishers suffer from great threat due to various reasons. Fishers have fewer fishing rights in depleted stock, having no right of selling their capture in paikers or retail fish markets directly. Moreover, the brutal clutch of money lending by the *dadonders*/ *aratders*, the fishers have been less-paid in the primary commission market in many ways such as by high rate of commission, reduced weight—*dholon* and “big one” taken by the *aratders* or *adatders*’ staff (*koyal*, *sarker*, cleaner etc.) [7].

Most of the *dadon* loans have been repaid by the beginning of next fishing season in *haor* region. But not all *dadon* loans are collected or repaid. As with other forms of tied financial relationships, some of the loans are left out throughout the successive years. This may happen if the money-lending trader wishes to keep the subordinate under his obligation for the next season. Alternatively, it may reflect either the inability of the subordinate trader to repay the loan or the willingness of the money-lending trader to fund some of the other activities of the subordinate [8]. Therefore, this study was developed with an aim (1) to find out the nature of *dadon* as well as interest on catch, size and quality of captured fish in Kishoreganj *haor*; (2) to explore the effect of *dadon* on socio-economic condition of two fishing communities (*dadon* receiver and *dadon* non-receiver fishermen) in Kishoreganj *haor*.

Haors are seasonal floodplains where most of the lands except homestead lands, remain under water for about 6 months. *Haor* water is rich with aquatic biodiversity since the water is clean and it supports natural breeding of many popular capture fishery species. The main livelihood of poor *haor* dwellers are fishing from these seasonal waters, as well as, from the rivers around which make networks in such low-lying areas. It was, therefore, assumed that *dadon* might play an important role on the livelihood of the fishing communities by impacting on fish catch size, catch composition and quality.

2. Materials and Methods

From the survey, nature of *dadon*, daily life and life style, woman's participation in family, physical assets of fishermen, etc. were generated. To collect primary data, survey was conducted at 6 fish landing centers in 5 *haor* upazilas of Kishoreganj. These are Chamra Ghat *Matshaya Arat* in Karimganj upazila (24°28'48.6"N, 90°57'18.0"E), Tarail *Matshaya Arat* in Tarail upazila (24°32'51.7"N, 90°53'36.3"E), Chouganga *Matshaya Arat* in Itna upazila, (24°31'30.2"N, 90°57'14.9"E), Korgaon Bazar *Matshaya Arat* in Kotiadi upazila (24°18'45.9"N, 90°54'43.8"E), Rodar Podda *Matshaya Arat* (24°18'39.8"N, 90°54'58.1"E) and Nikli *Notun Bazar Matshaya Arat* in Nikli upazila (24°19'55.66"N, 90°56'18.0"E) (Figure 1). The field study was carried out from August, 2018 to July, 2019, while the respondents available at the time of the survey were interviewed. The main target population of this study was the two types of fishermen "*dadon* receiver (DR) and *dadon* non-receiver (DnR)". A total of 120 individuals were interviewed (60 interviewees in each group) using a semi-structured questionnaire. Additionally, one focus group discussion and 3 key informant interviews were also conducted with knowledgeable persons, including Upazila Fisheries Officers, local leaders and non-governmental organization (NGO) officials working with fishing communities in each fish landing center.

All data generated in field were put, coded, and filtered in Microsoft Excel® version 2016 software. From the excel sheet, data were further exported and analyzed using SPSS 20 software. The analysis was done using descriptive statistics like percentage, frequency distribution, mean, and standard deviation where necessary. A comparison of proportions and means across the intervention groups was carried out using the appropriate statistical tests including t-test at 5% significant level ($p < 0.05$).

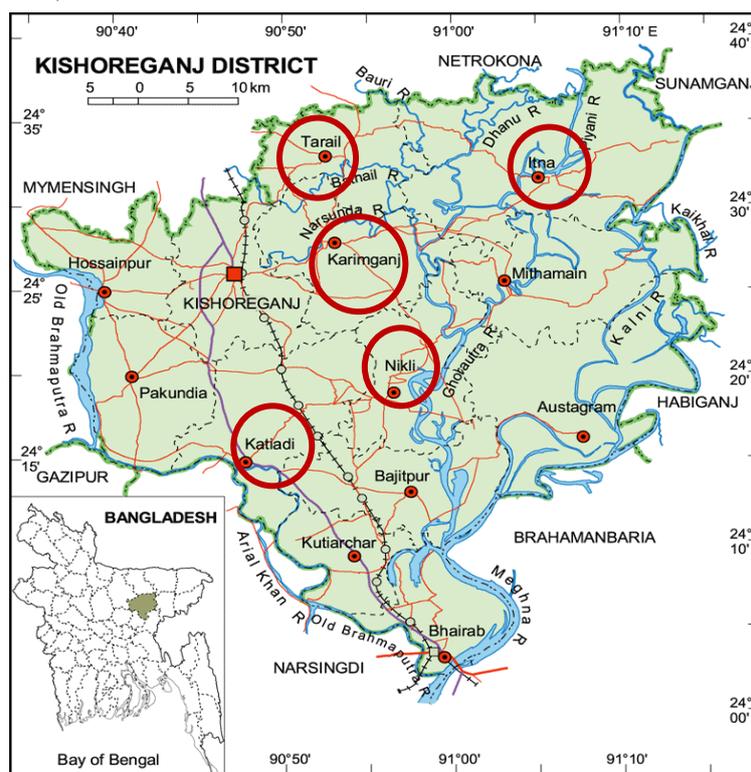


Figure 1. Map showing the location of the study area.

3. Results and Discussions

3.1. Nature of *dadon*

The present study revealed that majority of the fisherman (82%) took loan and/or *dadon* from different sources, of which non-institutional credit sources provided the highest amount of loan or *dadon* (50%) than the institutional credit sources (32%) in Kishoreganj *haor* (Figure 2a). The result of the present study showed lesser trends of receiving *dadon* by the *haor* fishers compared to high-value species catching fishers, as observed by Islam et al. [9] in hilsa shad (*Tenu-*alosa ilisha**) sanctuaries in Bangladesh, where *dadon* receiver were 90% and also by Chowdhury [10] in hilsa fishing communities in Lakshmipur district, where *dadon* receiver were 70%. In the *haor*, 42% fishermen took *dadon* from *araders* where they bound to sell their fish round the year, while the *mahajon* provided on 4% loan (Figure 2b). Khair [11] reported that 40% of fishermen were found to be dependent on *dadondar* which agrees with the present result.

About 27% and 5% fishermen took loan from NGOs and banks which were categorized as institutional credit source. About 18% fishermen did not take loan or *dadon* from any sources (Figure 2b).

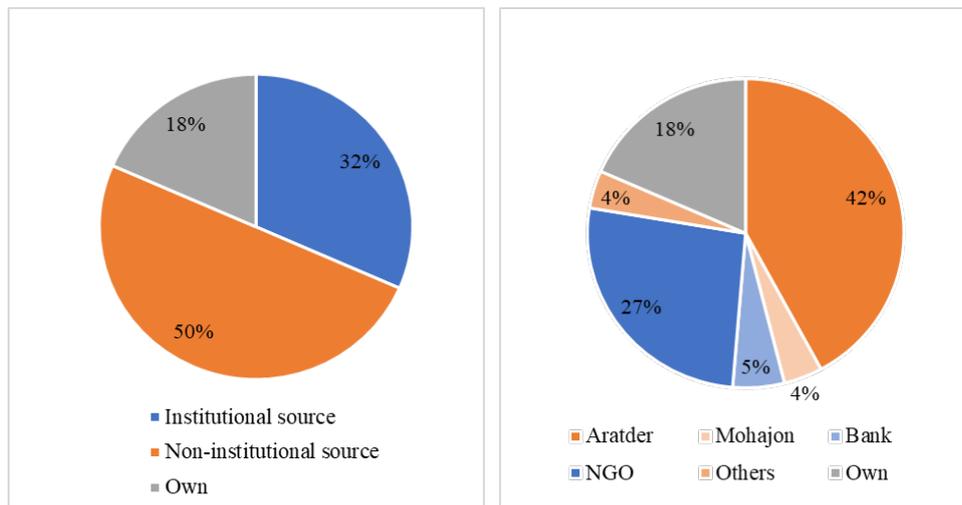
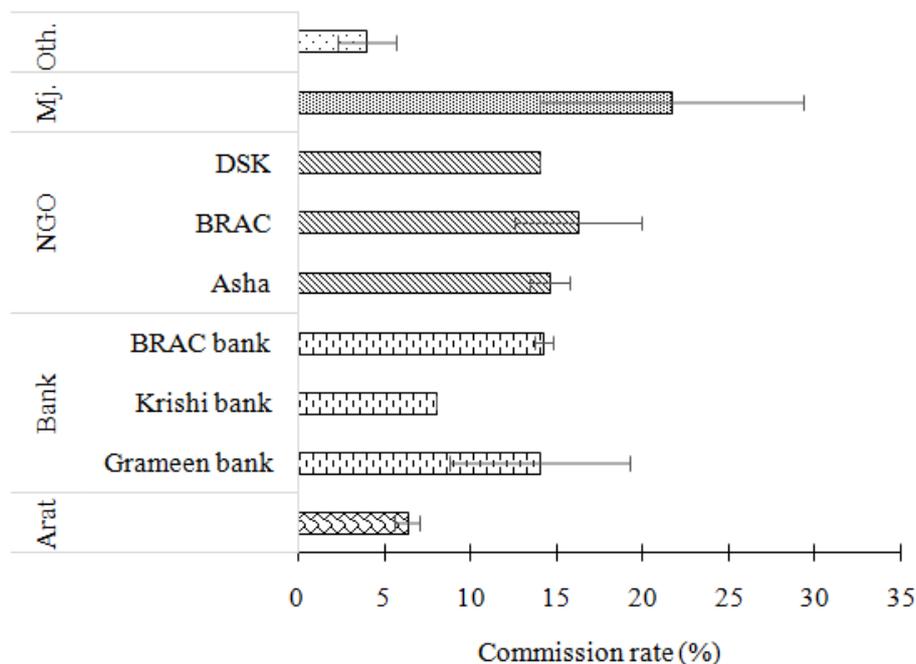


Figure 2. Sources of credit access (%)

3.2. Rate of commission against *dadon* and loan of credit agencies

The rate of commission of different credit sources are summarized in Figure 3. It was found from the survey that rate of commission in *arat* was comparatively lower (6.33%) than the other credit agencies *viz.* bank (12%), NGOs (15%) and *mahajon* (21.67%). The Krishi bank took 8% commission against loan from fishermen which was lower than BRAC bank (14.25%) and Grameen bank (14%). The rate of commission in BRAC NGO was 16.29% followed by Asha (14.48%) and *Dustho Shastho Karzakram* (DSK) (14%). Results also revealed that relatives or friends of *dadon* receiver fishermen took 4% commission from them against *dadon*. These results showed similarities with the findings of Nowsad [12], Habib [5] and Kleih et al. [6] while the findings of Ahmed et al. [13] are controversial to the present study and he reported that commission rate was as high as 10-12% in *arat* from fishermen in coastal belt of Bangladesh.



Mj. = Mahajon, Oth. = Others (relatives/friends)

Figure 3. Commission rate of various credit agencies (%) in Kishoreganj haor.

3.3. Rate of commission in *arat*

Commission rate against *dadon* taken from DR and DnR fishermen in six fish landing centers are summarized in Table 1. The result revealed that *aratder* took 3%-5% commission from DR fishermen and 1.8%-3% from DnR in different FLC. Additionally, the worker in *arat*, often called '*Koyal*' in local term, took extra 2.81%-3.6% commission from DR fishermen and 1.69%-3% from DnR fishermen. There the cumulative total commission went very high, as high as 5.9% to 8.5% in Kishoreganj *haor*, for the fishermen who receive *dadon* compared to DnR fishermen (3.9% to 5.8%). The reason for such high commission taken from DR fishermen was observed due to receiving *dadon* only. However, the rate of commission taken by the *dadonders* of Nikli, Rodar Podda, Chouganga and Tarail differed significantly ($p < 0.05$) (Table 1).

Table 1. Rate of commission in *arat* (%) given by *dadon* receiver and non-receiver fishermen

Fish landing center (FLC)	Commission		Extra commission		Total commission	
	DR	DnR	DR	DnR	DR	DnR
Nikli	5±0 ^b	1.8±0.73 ^a	3.1±0.19 ^a	2.97±0.21 ^a	8±0.16 ^b	4.77±0.64 ^a
Chamra ghat	4.8±0.37 ^a	4±1 ^a	2.81±0.18 ^a	1.69±0.5 ^a	7.61±0.29 ^a	5.69±1.45 ^a
Kargaon	3±0 ^a	1.8±0.73 ^a	2.9±0.18 ^a	2.1±0.24 ^a	5.9±0.19 ^a	3.9±0.6 ^a
Chouganga	3.8±0.49 ^a	3±0.16 ^a	3.6±0.4 ^a	2.28±0.28 ^a	7.4±0.6 ^b	5.28±0.23 ^a
Rodar podda	5±0 ^b	2.8±0.2 ^a	3.5±0.27 ^a	3±0.27 ^a	8.5±0.27 ^b	5.8±0.34 ^a
Tarail	4.9±0.1 ^b	2.4±0.6 ^a	2.95±0.41 ^a	3±0.52 ^a	7.85±0.31 ^b	5.4±0.87 ^a

DR = *Dadon* receiver, DnR = *Dadon* non-receiver

Mean values with different superscripts in the same row differ significantly ($p < 0.05$).

3.4. Difference of commission rate within species, size and quality of fish

Table 2 shows that there was no difference of commission rate within the species, size and quality of fish captured by DR and DnR fishermen among 6 fish landing centers in Kishoreganj *haor*. Nowsad [12], working with the fish farmers and fishers of Challan Beel area in Natore and Pabna, also reported that fish were sold in primary market though an auction and *aratdar* got variable rates of commission depending on different amount of *dadon* given to the farmers and fishers.

Table 2. Difference of commission within species, size, quality of fish against taking *dadon*

Fish landing center	Difference of commission (%)					
	Species		Size		Quality	
	DR	DnR	DR	DnR	DR	DnR
Nikli	0.0	0.0	0.0	0.0	0.0	0.0
Chamra ghat	0.0	0.0	0.0	0.0	0.0	0.0
Korgaon	0.0	0.0	0.0	0.0	0.0	0.0
Chouganga	0.0	0.0	0.0	0.0	0.0	0.0
Rodar podda	0.0	0.0	0.0	0.0	0.0	0.0
Tarail	0.0	0.0	0.0	0.0	0.0	0.0

DR = *Dadon* receiver, DnR = *Dadon* non-receiver

3.5. Status of *dolta* or *dholon* in Kishoreganj *haor*

'*Dholta*' or '*dholon*', is meant for a kind of marketing tax paid by fishermen who took *dadon* from *aratder*, practiced in traditional marketing system during auction of fish at *arat*. Table 3 revealed that *aratder* and *aratders*' paid staff (*koyal* or cleaner) in Kishoreganj *haor* took 0.1-0.75 kg fish out of an average 10 kg fish during auction based on species and location. The commission of *dholta* taken from *dadon* receiver was higher in *aratder* (4.41%) followed by *koyal* (3.5%) and cleaner/water supplier (1%) ($p < 0.05$). The cleaner or water supplier in *arat* took 100 g fish in each 10 kg fish from both *dadon* receiver and non-receiver fishermen, where commission of *dholta* was 1%. It was crucial that '*dholta*' was taken from both DR and DnR fishermen (Table 3). Nowsad [7] reported that the inhumane clutch of money lending by the *dadonders* or *aratders*, the fishers have been less-paid in the primary commission market in many

ways, as by high rate of commission, reduced weight, *dholon* and also “big one fish” taken by the *aratders* or *adatders*’ staff (*koyal*, *sarker*, cleaner etc.).

Table 3. Amount of *dholta* or *dholon* taken by working person in *arat*

Working person in <i>arat</i>	<i>Dadon</i> receiver			<i>Dadon</i> non-receiver		
	TQF (kg)	WFT (kg)	AD (%)	TQF (kg)	WFT (kg)	AD (%)
<i>Aratder</i>	10.32±1.34	0.53±0.05	4.81±.39 ^b	22.13±5.14	0.45±.09	2.97±.36 ^a
<i>Sarker</i>	0±0	0±0	0±0	0±0	0±0	0±0
<i>Koyal</i>	10±0	0.75±.5	3.5±1 ^b	0±0	0±0	0±0 ^a
Cleaner/water supplier	10±0	0.1±0	1±0 ^a	10±0	0.1±0	1±0 ^a
Others (Middle man)	0±0	0±0	0±0	0±0	0±0	0±0

DR = *Dadon* receiver, DnR = *Dadon* non-receiver, TFQ = Total quantity of fish, WFT = Weight of fish taken, AD = Amount of *dholon*. Mean values with different superscripts in same row and column differ significantly (p<0.05).

3.6. Advantage of taking *dadon*

Figure 4 summarizes the advantages of taking *dadon* from *aratder* as perceived from present study. Since no mortgage assets were required, the highest proportion (33%) of fishermen took *dadon* from *dadonder*. A 24% *dadon* receiver claimed that they took *dadon* due to its easy terms and conditions, 20% took it for low interest rate, 15% for having flexibility of daily or monthly repayment and 6% for opportunity of getting any amount of *dadon* as per necessity. Habib [5] reported that *dadon* was provided on trust rather than by written document or against any collateral property due to lack of collateral assets like landed property. Many authors [5, 6, 7] observed low interest rate of *dadon* compared to other forms of loan, either institutional or non-institutional, which has also been well agreed in the present findings.

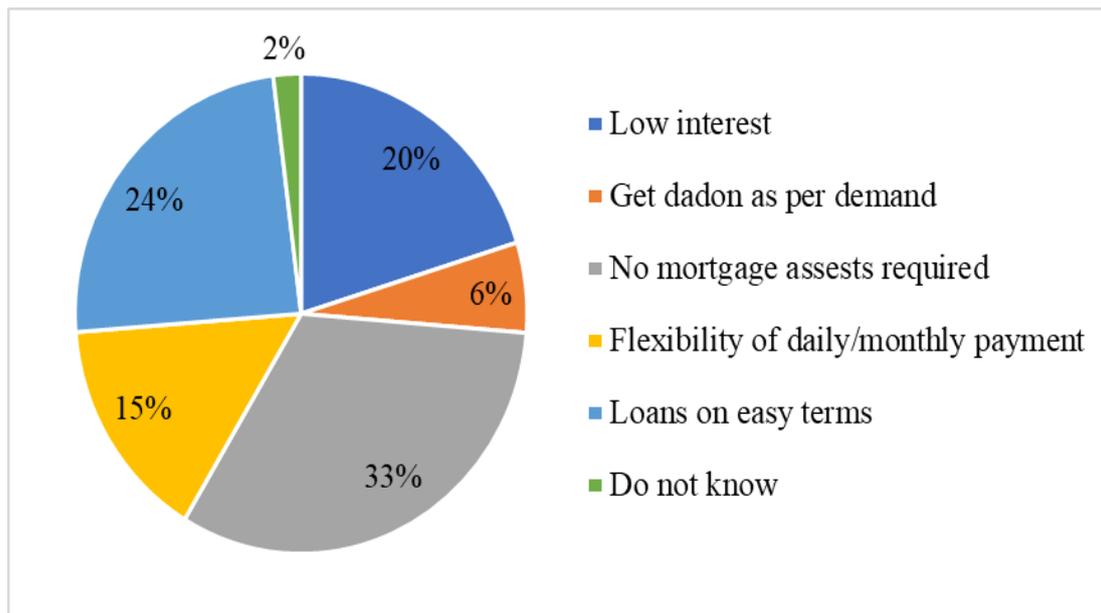


Figure 4. Advantage of taking *dadon* (%).

3.7. Purpose and utilization of *dadon*

The purpose and utilization of *dadon* by the DR have been depicted in Figure 5. The study revealed that *dadon* was taken mainly for fishing purposes (56.83%) and household purposes (43.17%). In fishing purposes, highest utilization of *dadon* money was found to be for repairing boat or trawler (23.56%), followed by leasing *haor* water body (14.83%), purchase of boat (12.47%), purchase of net or other gears (4.16%) and management of sanctuary in *haor* waters (1.81%). In household purposes, the highest amount was used in children’s education (18.97%) followed by repair and renovating house (13.44%), purchase of land (5.83%) and repay of loan (2.69%). Ali [14] and Ahmed et al. [13] observed that fishermen took *dadon* from different resources for maintaining their family during lean and ban fishing period as well as for purchasing fishing equipment.

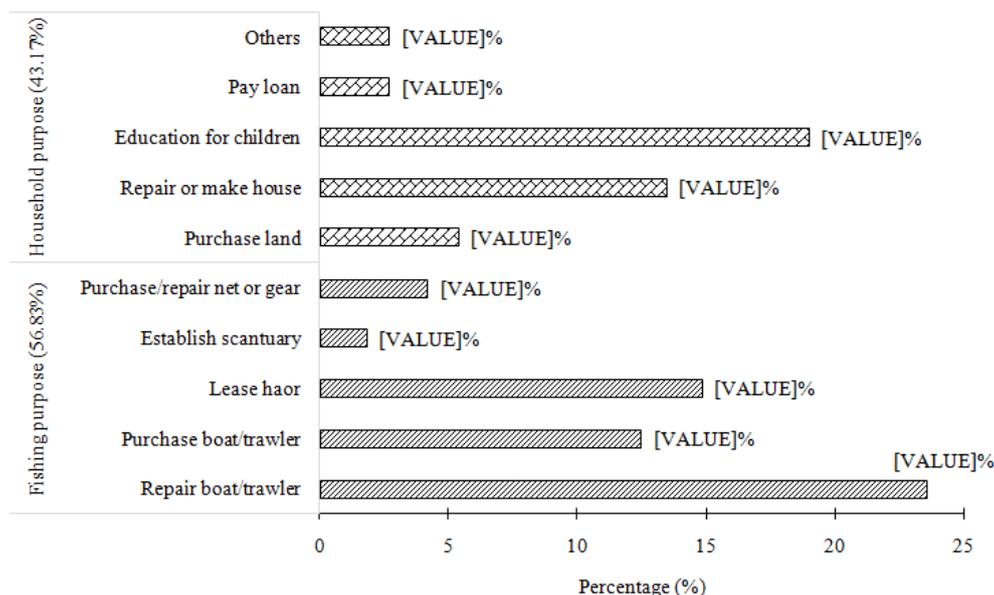


Figure 5. Reasons for taking *dadon* (%) by fishermen in Kishoreganj haor.

3.8. Mode of payment of *dadon*

It was revealed that most of the DR fishermen (58%) repaid the total amount taken by the end of the same fishing season, while monthly, weekly and daily repayment were observed to be 15%, 7% and 2%, respectively. About 18% DR fishermen told that they could not repay the *dadon*, because of their inability for low income. Crow and Murshid [8] reported that most of the *dadons* have been repaid by the beginning of next fishing season, but not all *dadons* could be collected or repaid, which is also well agreed in the present findings. This may also happen if the *aratder* wishes to keep the fishermen under his obligation for the next season. In that case, more *dadon* is given to the same DR. On the contrary, it may reflect either the inability of the fishermen who receive *dadon* to repay the loan or the willingness of the *aratder* to fund or support for some of the other activities of the fishermen to expand control. Ferdoushi and Xiang-guo [15] reported that the payment was found to be 50% immediate (*dadon*) and 50% within 1 to 7 days of selling in mud crab trading, from fattener to local agent, in the southwest region of the country, Shatkhira and Shamnagar.

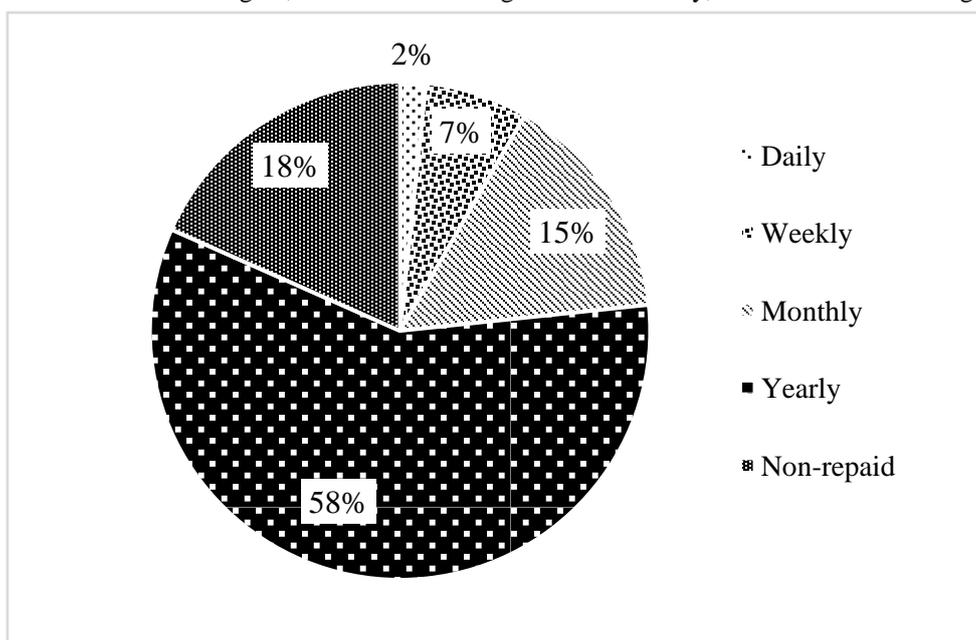


Figure 6. Repayment status of *dadon* (%).

3.9. Financial profiles of *dadon* receiver (DR) and *dadon* non-receiver (DnR) fishermen

Monthly average income and annual savings of DR and DnR fishermen are shown in Table 4. Results revealed that the monthly income and annual savings were comparatively higher in most cases in DR fishermen than DnR fishermen ($p > 0.05$). The monthly average income level of DR fishermen ranged from 10,900-17,000 BDT, while that of DnR fishermen ranged from 10,200-15,000 BDT. In addition, the annual savings of DR fishermen ranged from 14,600-37,000 BDT and DnR fishermen ranged from 14,600-32,200 BDT. These higher income and savings of DR fishermen might be due to higher fishing activity and increased economic mobility, geared by the pressure of paying back higher interest for *dadon* taken and for the urge of improved family maintenance. The fishermen who took *dadon* were bound to the *aratder*, who is also money lender, in a debt cycle and must sell all the fish they harvest through the *aratder* in a price much lesser than the market price [12, 25]. So, DRs were found to perform well in earning and saving money compared to DnRs.

Table 4. Average income (monthly) and savings (annual) of DR and DnR fishermen (In thousand BDT)

Fish landing center	Monthly income (BDT)		Annual savings (BDT)	
	DR	DnR	DR	DnR
Nikli	13.1±1.7 ^b	14.5±2.39 ^b	16.6±4.68 ^a	16.4±4.03 ^a
Chamra ghat	17.3±2.69 ^b	13.7±3.07 ^a	37.2±6.39 ^b	19.2±11.79 ^a
Kargaon	13.1±1.95 ^b	14.7±2.86 ^b	23.6±5.18 ^a	22.1±7.55 ^a
Chouganga	15±2.68 ^b	11.1±.71 ^a	33.2±10.23 ^b	24.8±7.26 ^a
Rodar podda	10.9±1.57 ^a	10.2±1.46 ^a	17.2±3.61 ^b	14.6±3.34 ^a
Tarail	14.8±3.5 ^a	14.2±1.43 ^a	26.4±3.71 ^b	22.1±6.16 ^a

Mean±SD values for same parameter with different superscripts in the same row differ significantly ($p < 0.05$).

3.10. Social status of DR and DnR fishermen based on monthly income

Average income level of an individual fishing family determines its social status in the society. The social status of DR and DnR fishermen were explained under three (3) categories by their monthly income such as poor (below 10,000 BDT), middle class (10,000-20,000 BDT) and rich (above 20,000) (Figure 7). Results revealed that the social status of DR fishermen was comparatively better than DnR fishermen ($p > 0.05$) because of their comparatively higher average income level. Middle class group were dominant in two fishery association groups but higher in DR fishermen (60%) compared to DnR fishermen (53.3%).

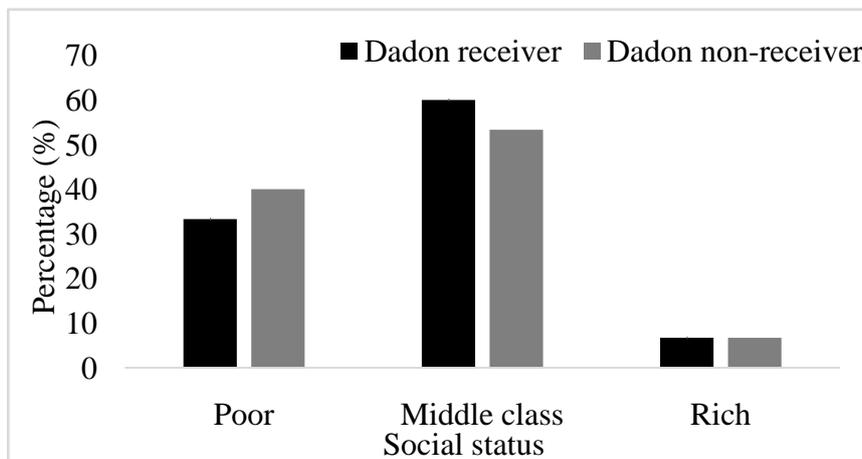


Figure 7. Social status (%) of *dadon* receiver and non-receiver fishermen.

3.11. Demographic profiles of DR and DnR fishers' household

The demographic characteristics are summarized in Table 5. It was found that young aged members (11-30 years) were dominant in both the fishers' household but higher in DR household. This demographic feature of fishing communities agreed well with the overall all demographic characteristics of the country [16]. Ali et al. [17] observed that young and middle age persons in the range of 20-40 years was the highest (58%) and above 50 years was the lowest (20%) in fishing community of Tarakanda *upazila* in Mymensingh district which was much similar to the present study.

Results revealed that medium size family was dominant in both fishers' association but higher in DnR fishers' household ($p>0.05$). The educational status was comparatively better in DR fishermen than DnR fishermen ($p>0.05$). This variation might be due to economic non-wellbeing and lack of awareness about education, which support the findings of Sufian et al. [18] conducted with the fishing communities of Dekar *haor* in Sunamganj.

Table 5. Profile of household members' in DR and DnR fishermen

Variables	Percentage		Variables	Percentage	
	DR	DnR		DR	DnR
Age Structure (years)			Family size		
Children (0-10)	21.21 ^a	31.99 ^a	Small (2-4)	37.36 ^a	25.74 ^a
Young (11-30)	45.26 ^a	43.9 ^a	Medium (5-8)	51.67 ^a	72.41 ^a
Middle (31-50)	24.49 ^a	15.5 ^a	Large (above 8)	10.97 ^a	1.85 ^a
Old (>50)	9.04 ^a	8.62 ^a	Educational status		
Secondary occupational status			Illiterate	32.91 ^a	32.14 ^a
Agriculture	28.58 ^a	30.14 ^a	Primary education	34.24 ^a	33.39 ^a
Business	1.47	0	SSC	23.62 ^a	26.86 ^a
Day labour	1.47 ^a	2.17 ^a	HSC	3.37 ^a	2.01 ^a
Agri.+Busi.	1.85 ^a	1.96 ^a	Graduate	0.58 ^a	0.88 ^a
Agri.+ DL	9.51 ^a	8.9 ^a	Madrasah	5.28 ^a	4.72 ^a

DR = *Dadon* receiver, DnR = *Dadon* non-receiver, Agri. = Agriculture, Busi. = Business, DL = Day labour, SSC = Secondary school certificate, HSC = Higher secondary certificate.

Values with different superscripts within same parameter in the same row differ significantly ($p<0.05$).

3.12. Physical assets of DR and DnR fishermen

As far as the estimation of ownership of land and homestead area was considered, 1 to 5 decimal land and 1 to 3 decimal homestead area were dominant in both fishing groups but comparatively higher in DR fishermen than DnR fishermen. Results revealed that 4 to 8 decimal homestead area possessed significantly higher ($p<0.05$) by DnR (43.8%) fishermen compared to DR fishermen (21.87%).

Present study observed all fishermen from both DR and DnR households (100%) used tube-wells water for drinking. This scenario was quite common among the fishermen in most areas of Bangladesh and similar results were documented by Alam and Bashar [19] about 30 years before. According to BBS [20], about 98% people from seven geographic divisions of Bangladesh used to drink tube-well water which supports this study.

The electricity facility was higher in DR fishermen (93.75%) compared to DnR fishermen (91.48%), which was much higher than the findings by Trina et al. [21] in Dekhar *haor*, Sunamganj 5 year back, where about 76% fishermen had access to electricity. The economic condition of stakeholders was the main cause for decreasing the access of electricity facilities between two fishery association groups.

The majority of the fishermen both in DR and DnR had *kacha* house, but higher number in DnR fishermen (96.3%) compared to DR fishermen (93.34%). This might be due to the *dadon* receiver fishermen used a portion of *dadon* for household renovation including construction of new house. Sufian et al. [18] reported that 90% fishermen were living in *kacha* house which support the present study.

Kabir [22] and Khair [11] reported that 60% fishermen were found to have small non-mechanized boats and fishing net which was in agreement with the present study. It was found from the survey that most of the DR fishermen had their own fishing boat and net (51.35%) compared to DnR fishermen (38.89%). As observed, the fishermen took *dadon* from *aratder* for the preparations of next season fishing, mending or purchase of nets and other gears, as well as for family subsistence during fishing period. These findings are in agreement with that of Habib [5].

However, in spite of their comparative economic wellbeing as observed during the present survey, most of the DR fishermen (63.9%) told that their livelihood status became worse compared to the past, due to taking *dadon*. On the other hand, 52.5% DnR fishermen said that their livelihood status had been improved compared to past, because of not taking *dadon* (Table 6). However, considering all parameters in Table 6, it was observed that the livelihood improvement status was comparatively better in DR fishermen ($p>0.05$) compared to DnR fishermen.

Table 6. Profile of physical assets of *dadon* receiver (DR) and non-receiver (DnR) fishers' household

Variables	Percentage		Variables	Percentage	
	DR	DnR		DR	DnR
Land ownership			Source of drinking water		
Landless	3.34 ^a	7.5 ^a	Pond/river/canal	0	0
1 to 5	55.7 ^a	48.5 ^a	Rain	0	0
6 to 50	23.2 ^a	36.8 ^a	Supply	100 ^a	100 ^a
Above 50	17.8 ^a	7.5 ^a	Tube-well	0	0
Access to homestead area			Ownership of fishing assets		
No land	3.33 ^a	7.5 ^a	Boat	14.2 ^a	5.5 ^a
< 1	3.33	0	Net	7.5 ^a	13.8 ^a
1 to 3	56.7 ^a	36.8 ^a	Both	51.3 ^a	38.9 ^a
4 to 8	21.7 ^b	43.8 ^a	Hired boat	7.5 ^a	11.1 ^a
8 to 12	11.7 ^a	6.7 ^a	Hired Net	14.2 ^a	8.3 ^a
Above 12	3.33 ^a	5.2 ^a	Hired both	5.1 ^a	22.2 ^a
Housing condition			Kitchen facilities		
Kacha	93.3 ^a	96.3 ^a	Opened	26.4 ^a	28.2 ^a
Semi-pacca	4.67 ^a	3.7 ^a	OFR	8.33 ^b	15.2 ^a
Pacca	1.99	0	FWR	65.2 ^b	56.7 ^a
Electricity facilities			Sanitation facilities		
No electricity	0	3.33	Sanitary	73.7 ^a	52.5 ^a
Solar	6.25 ^a	5.2 ^a	Closed	19.5 ^a	34.0 ^a
Electricity	93.7 ^a	91.5 ^a	Opened	6.6 ^a	13.3 ^a
			Livelihood improvement status		
Both	0	0	Improved	36.1 ^a	52.5 ^a
			Not-improved	63.9 ^a	20.2 ^a

DR = *Dadon* receiver, DnR = *Dadon* non-receiver, OFR = Only fence no roof, FWR = Fence with roof.
 Values with different superscripts within same parameter in the same row differ significantly ($p < 0.05$).

3.13. Empowerment indicators of women in DR and DnR fisher's household

The four indicators such as mobility, economic security, ability to make small purchases and involvement in major household decisions were used to find out the women's empowerment in *dadon* receiver and non-receiver fisher's households (Table 7).

Mixed results were obtained from the women of two groups. In case of mobility and decision taking for small purchase, women from DnR fishermen were better empowered ($p < 0.05$) than those from DR fishermen. While in case of economic security and family decision making on children education, treatment and marriage, women from DR were better empowered compared to women from DnRs ($P < 0.05$). According to Kazal et al. [23], a very high percentage (72%) of households reported that women had active role in household decision-making jointly with their husbands. Present findings also gave evidence that fishers women were empowered in household decision-making in *haor* areas, which agree with the findings of other studies. Kazal et al. [23] observed 38% women from fishery community households took decision jointly with their husbands, while 21% of them took household decision independently during any family food crisis. CDSF [24] reported that fisher-women took most of the decisions jointly with their husbands, which also have been confirmed by the present study.

Table 7. Empowerment indicators of women in DR and DnR fisher's household

Variables	Percentage		Variables	Percentage		
	DR	DnR		DR	DnR	
Women's mobility			Purchase of small things			
Show doctor	21.6 ^a	21.3 ^a	Own dress	9.5 ^a	13.9 ^b	
Visit relatives' house	2.1 ^a	18.5 ^b	Own cosmetics	2.1 ^a	5.5 ^b	
Buy medicine	14.1 ^a	17.2 ^b	Involvement in major decision about children			
Economic security			Education	Ind.	38.6 ^b	34.2 ^a
Mobile	9.7 ^b	6.6 ^a		JwHb	38.6 ^b	30.9 ^a
b-kash account	0	0		Ind.	36.5 ^b	32.2 ^a
Bank account	4.2 ^b	1.8 ^a	Treatment	JwHb	36.5 ^b	28.8 ^a
Loan from NGO	12.9 ^a	26.5 ^b		Ind.	37.5 ^b	25.1 ^a
Land	12.2 ^b	3.3 ^a	Marriage	JwHb	37.5 ^b	25.1 ^a

DR = *Dadon* receiver, DnR = *Dadon* non-receiver, Ind. = Individual, JwHb = Jointly with husband, Values with different superscripts within same parameter in the same row differ significantly ($p < 0.05$).

4. Conclusion

In general, *dadon* system in the fishing communities has furnished the traditional kinship arrangement, but confines the economic freedom of fishers by binding them into long-term exploitative debt bondage. However, the effective utilization of this social capital system can play an important role in reducing vulnerability and help people to survive in times of crisis. *Dadon* was found to be a major source of livelihood among the fishers' communities in Kishoreganj *haor* areas and played a positive role to lead better life by *dadon* receiver fishermen compared to *dadon* non-receiver fishermen. The present study would serve as a useful reference of *dadon* system in future fisheries management. Since the rate of commission against *dadon* is very high, many present *dadon* receivers were not interested to receive *dadon* anymore. By reducing commission rate to around 2%-3% through implementing rules, regulations and strict monitoring and surveillance by the GO and NGOs, *dadon* system can further aid in sustainable capture fisheries management, especially in floodplain fisheries.

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Conflict of interest

The authors declare no conflict of interest.

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