

What is “legal” and “illegal?”: Social Norms, Current Practices and Perceived Risks among the Cryptocurrency Users in Bangladesh

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ABSTRACT

Cryptocurrency practices worldwide are seen as innovative, yet they navigate a fragmented regulatory environment. Many local authorities aim to balance promoting innovation, safeguarding consumers, and managing potential threats. In particular, it is unclear how people deal with cryptocurrencies in the regions where trading or mining is prohibited. This insight is crucial in conveying the risk reduction strategies. To address this, we conducted semi-structured interviews with 28 cryptocurrency traders and miners from Bangladesh, where the local authority is hostile towards cryptocurrencies. Our research revealed that the participants use unique strategies to mitigate risks around cryptocurrencies. Our findings indicate a prevalent uncertainty at both personal and organizational levels concerning the interpretation of laws, a situation worsened by the actions of the major financial service providers who indirectly facilitate cryptocurrency transactions. We further connect our findings to the broader issues in HCI regarding folk models, informal market and legality, and education and awareness.

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1 INTRODUCTION

The rise of cryptocurrency has revolutionized the global financial ecosystem, providing a decentralized counterpart to the conventional banking and monetary systems [32]. With the growing traction of cryptocurrencies like Bitcoin, Ethereum, and many others,

there has been an increase in global user interest and participation in various crypto activities, ranging from trading to staking to mining. The cryptocurrency domain has witnessed a substantial growth over the past years and the approximations indicate about 80 million crypto users in the United States and a global count of 560 million USD as of 2024 [8], with a total market cap of almost two trillions USD [9]. This valuation, however, is subject to swift fluctuations influenced by the market dynamics, regulatory updates, tech innovations, and other determinants [56]. Similarly, the user demographic has evolved, now extending beyond the original circle of cypherpunks, to the point where it has been declared as a legal state currency [10]. Consequently, the study of cryptocurrency has gained attention in the security and privacy community and studies from the Western perspectives have frequently underscored security, financial, and platform-related risks as the primary concerns for those involved in cryptocurrency as traders, miners, or investors [19, 33, 37, 38, 54, 73, 87].

However, the scholarship related to cryptocurrency users beyond the Global North is very limited. Although a few studies have been conducted with the Middle East and Far East populations [21, 44, 73, 74], the experiences, risk perceptions, and concerns around the cryptocurrency practices of the actual traders and miners in South Asia¹, have remain understudied. Many South Asian countries have several infrastructural barriers that make the adoption of cryptocurrencies significantly difficult. The traditional, community-based, and hierarchical social structure of South Asia also offers a distinct background to understand the trust mechanism built by these people to deal with cryptocurrencies [45]. Despite these challenges, in South Asia, crypto adoption has gained a steady foothold and according to a recent estimate, South Asian countries (India and Pakistan, for example) consistently rank top among the adopters of cryptocurrency globally [7]. However, in some of these countries such as Nepal and Bangladesh, cryptocurrency-related activities have been legally banned or strictly prohibited by the local authority [43, 51]. The strategies adopted by the traders and miners in this region to circumvent these regulations, along with their underlying motivations and risk perceptions, are unexplored in the HCI literature. Our work fills this gap in the literature by

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¹South Asia refers to the sub-Himalayan region of eight southern Asian countries [71].

conducting a study with the cryptocurrency traders and miners in Bangladesh, where cryptocurrency is strictly prohibited by the central banking authority.

In this work, we conducted semi-structured interviews with 28 cryptocurrency traders and miners from Bangladesh. This paper aims to explore the perceptions, experiences, and practices of the trading and mining community in Bangladesh in relation to the local cultural, social, and economic contexts. We further aim to highlight the potential risks in terms of security, finance, and regulation, stemming from the interactions with the cryptocurrency ecosystem. In doing so, we examine two main research questions:

Research Questions:

- RQ1: What are the current practices of the cryptocurrency adopters in Bangladesh to engage with trading and mining activities?
 - RQ 1.1: How do these users bypass the regulatory restrictions on cryptocurrencies to conduct their activities?
- RQ2: What are users' perceived risks towards cryptocurrency trading/mining/other related activities?
 - RQ 2.1: How do these users currently mitigate these risks?

Summary of Findings. To address **RQ1** – we explore what tools and self-articulated strategies the participants apply when engaging with cryptocurrency, given that the environment in Bangladesh is hostile from the regulatory standpoint. Contrary to the studies in the Global North where technological innovation is a major motivating factor, we observed that the participants in our study ventured into this domain for achieving financial freedom [67, 89]. To interact with the cryptocurrency ecosystem, they adopt some innovative strategies in addition to using various crypto exchanges, and as such, exhibit a heightened trust in the P2P features integrated into the chat systems of some exchanges, serving as intermediaries to facilitating the transactions between different traders within the ecosystem. We also identified several methods, including using the credentials of friends and family members.

To address **RQ2** – we identified users' perceived risks and underlying factors influencing those perceptions as well as how cryptocurrency users currently deal with those risks. Notably, our participants did not express concerns about the potential loss of funds from the exchanges – a sentiment that is common among the users in the Global North – primarily due to a lack of awareness of the significant crypto breaches [30, 58, 91]. Their risk perception is more localized, focusing on the regulatory and legal challenges with less emphasis on critical risks, such as key management, and recovery of wallets. They navigate through their own interpretations of the ambiguous cryptocurrency laws of the country and lose funds due to poor infrastructural support. To mitigate potential risks, they adopt various precautionary measures including utilizing diverse crypto exchanges and mining pools and devising alternative methods for withdrawing funds. These methods include limiting withdrawal amounts, not using personal bank accounts, distributing withdrawals across multiple bank accounts, leveraging Mobile Financial Service (MFS) providers, and utilizing overseas friends' bank accounts, among others. We show that some of these activities problematize our notions of what is “legal” and “illegal”, especially when considering local norms.

Main contributions. Our work makes three main contributions. Our study (1) generates novel findings from an understudied population (e.g., traders and miners in Bangladesh) regarding performing security and privacy tasks; (2) provides insights into the risk factors and the mental models of managing cryptocurrencies, shedding light on how user perceptions may differ from the findings of the existing literature; and (3) offers a situated understanding of the cryptocurrency practices in relation to the informal markets in the Global South.

2 RELATED WORK AND BACKGROUND

In this section, we first provide an overview of the existing literature on users' experience and perceived risks regarding cryptocurrencies. We then summarize the cryptocurrency laws and regulations in different countries in the Global North and the Global South. Next we discuss the cryptocurrency studies conducted with the Global South users. Since the cryptocurrency market in Bangladesh is not formally regulated, we also highlight the relevant HCI literature on informal markets in the Global South.

2.1 User Experience, Perceived Risks, and Security and Privacy Measures

Cryptocurrency – a digital or virtual form of currency – has gained significant attention in recent years. As its adoption grows, understanding users' experiences and perceptions becomes crucial. Prior research indicates that user motivation predominantly revolves around financial gain and technical curiosity [19, 38, 53, 54, 73]. Some also highlight the innovative nature of the decentralized technology and its disruptive potential [36]. The anonymous transaction feature of Bitcoin has also been considered a significant driver for its adoption [53]. Previous studies from Global North explored facets of users' interactions with cryptocurrency, including the behavior of internet consumers in relation to blockchain [48] while concerns about price volatility and the absence of regulatory oversights are prevalent among the users [24].

Another set of work conducted user studies to observe the interaction of users with cryptocurrency management tools, with a particular focus on usability [33] where newcomers often find it challenging to understand cryptocurrency terminology and basic principles, such as managing key [73, 87], trust issues [39, 41, 77, 86], misunderstandings in crypto metaphors and insufficient user assistance [31, 76], unpredictability and software threats [54]. Notably, beginners are typically less acquainted with security methods like multi-signature crypto wallets and use them less frequently than experienced users [19]. Some findings show that users often possess multiple cryptocurrencies, manage their holdings in different wallets based on their particular use cases, and keep multiple backups of their private keys to reduce accidental loss or mistakes [19, 38, 54]. Additionally, studies have explored trust dynamics among various cryptocurrency stakeholders - users, miners, exchanges, and governments to handle dishonest or bad actors [52, 72, 73].

Several studies investigated cryptocurrency users' perceptions of risk and their security and privacy measures [19, 33, 37, 38, 54, 73, 75, 79, 87]. Some have pinpointed the primary risk types that users of cryptocurrency believe could result in financial setbacks: mistakes, deceit, and hostile attacks [38, 73]. Other research

highlights societal pressures to embrace cryptocurrencies, difficulties in accessing funds after the owner’s demise, and potential threats of physical assaults when keeping cryptocurrencies domestically [87]. While the users recognize a wide range of risks, many don’t fully grasp the foundational technology behind cryptocurrencies. This leads to misunderstandings about key handling, sending cryptocurrency to wrong addresses, transactions, and associated costs [19, 38, 54, 59]. There are also prevalent misconceptions about the level of anonymity and privacy on the blockchain [54]. Despite this rich body of literature, to the best of our knowledge, no study has investigated the risk perceptions of active traders and miners in a hostile environment in Global South. Our work fill this gap in the literature.

2.2 Cryptocurrency Laws and Regulations

The usage of cryptocurrency within a specific country has consistently relied on the rules and regulations established by local authority. When the local government adopts a more permissive approach within a country, cryptocurrency ecosystem tends to surge within that region [80]. Consequently, global adoption of cryptocurrency has not been uniform - while the developed countries have been experiencing rapid growth, the developing nations have witnessed a slower adoption rate [66]. Most Global North countries - including the United States, the United Kingdom, Canada, Italy, France, Germany, Switzerland, and Japan - maintain a positive attitude towards the cryptocurrency ecosystem [49]. However, there are nuances regarding the interpretation of the intrinsic values of cryptocurrencies across these countries. For example, Germany used to regulate virtual currencies as real currencies [83], and trading cryptocurrency under 600 Euro in Germany had been tax-exempt [49]. On the other hand, some countries (Britain, Spain, Finland, and Israel, for example) consider virtual currency as taxable properties [49].

In the Global South countries, scenario is quite different compared to Global North countries. In 2017, China banned cryptocurrency trading and fundraising through initial coin offering [22, 51], leading miners to move their operations to other countries [22]. Governments in Thailand and Brazil have been reported to take a similar stance on cryptocurrency [43, 51]. However, Iran, Singapore, South Africa, Venezuela, and a few other countries demonstrate a friendly attitude towards cryptocurrencies[49]. El Salvador is the first country in the world to have recognized Bitcoin as the official currency [10]. Against these backdrops, Bangladesh is one of the countries in Global South where cryptocurrency is prohibited.

2.2.1 Cryptocurrency Laws in Bangladesh. Bangladesh is considered to be one of the most hostile countries in the world to cryptocurrencies [13]. The first warning against cryptocurrencies came in as early as 2014, when the Central Bank issued a cautionary notice against bitcoin, citing the Foreign Exchange Regulation Act 1947 [12], and the Money Laundering Prevention Act 2012 [14]. The bank officials also separately told the foreign press that anyone found guilty in Bangladesh of using Bitcoin could be jailed for up to 12 years [17]. Towards the end of 2017, the second cautionary notice was issued, which cited the Anti-Terrorism Act 2009 as another law that the use of Bitcoin could violate [1]. More recently, in September 2022, Bangladesh Bank released a circular in which they explicitly declared that any transactions made in, from, or to Bangladesh

for obtaining virtual currencies are not permitted [11]. We note that despite the warnings from these authorities, the parliament of Bangladesh – the supreme legislative body of the country – falls short of criminalizing or banning cryptocurrency. Many lawyers offer a nuanced interpretation of the local laws to argue that cryptocurrencies are not illegal either [13]. However, this does not hide the fact that authorities are strict on this agenda, although there are no verified reports of charges and convictions [13]. Under such circumstances, it is fair to assume that the environment of Bangladesh is extremely hostile for our target participants, consequently, we adopted strong measures to protect the anonymity of our participants (please see Section 3.4). Our study seeks to identify how the local population there bypass the laws and regulations to trade and mine cryptocurrencies by adopting innovative methods, and in the process, to what extent expose themselves to unforeseen risks and legal consequences.

2.3 Cryptocurrency Studies in Global South

In the Global South countries, the studies related to cryptocurrencies have been primarily geared towards the opportunities and challenges of the enterprises as well as the sentiments of the general population [44, 63, 74, 81, 88, 93], and as such, the practices of the retail traders and the miners have remained an understudied topic. For example, the Unified Theory of Acceptance and Use of Technology (UTAUT) model has been used to understand the public acceptance of Bitcoin among Indonesian users and the results show that social influence, cybersecurity primitives, and government regulation have a positive effect on behavioral intention to accept the use of bitcoin [44]. In Kenya, SMEs show openness towards cryptocurrency payments [63]. Similarly, in China, the inclination towards adopting Bitcoin depends on factors like awareness, ease of use, usefulness, and trust [74]; while South African Bitcoin adoption has primarily been influenced by the perceived advantage, attitude, subjective norm, and behavioral control [88]. Another work extended the Theory of Reasoned Action (TRA) with perceived risk, enjoyment, usefulness, and personal innovation factors to assess the ease of cryptocurrency adoption in Saudi Arabia, revealing that subjective norms, security risk, perceived usefulness, and enjoyment significantly impact cryptocurrency adoption and usage by encompassing both pleasure and utility perceptions[21]. The Saudi Arabian and Middle Eastern users have also demonstrated a reasonable understanding of the technology but less interest in adopting it [25]. A study conducted with Malaysian bitcoin users reveals that they see this particular cryptocurrency as a store of value for speculative investment [73].

Our study not only seeks to understand the motivations of the actual cryptocurrency traders and miners but also the strategies they employ to trade and mine cryptocurrencies in a hostile environment regulated by local law.

2.4 Informal Markets, Legality, and Morality

The HCI research on entrepreneurship in the Global South has revealed many interesting insights regarding the functioning of informal markets. Informal markets are markets where transactions are guided by values, norms, and traditions instead of formal rules and laws [50, 57, 60]. These informal markets have been studied both in technological and non-technological contexts. Since these markets operate beyond the contexts of formal rules and laws,

the HCI scholarship on informal markets has been largely guided by the discourse on morality and legality. For example, the “grey” economic phenomenon in New Delhi – a hub of pirated software – has been investigated to better understand the interaction between the media markets, small software and hardware factories, local shops, and customers [82]. Similarly, in Bangladesh, researchers have studied the illegal activities conducted in the digital service centers to identify an alternative version of morality and legality developing among the shopkeepers and the customers [46].

In his seminal work on “bazaar economy” [42], Geertz identifies information scarcity as the key identifying feature of informal markets, along with the trends of bargaining and repeated interactions between the same actors. Other studies have reported how local norms and social relationships play an important role in reducing information uncertainty and noise in those markets. Due to the prevalence of informal markets in the Global South, researchers argue that social and economic life here is in large part disconnected from the formal legal framework and the concept of “legality” is fluid and constantly challenged in everyday life [23, 26]. Consequently, morality is embedded in local social contexts here and is derived from the notion of “ordinary ethics” [28], which argues against adopting any universalist legal framework and advocates in favor of considering the practices of everyday life as the source of ethics [40]. A prime example of this is the prevailing “hundi” mechanism in Bangladesh [61], which, despite being illegal, is an acceptable social practice in Bangladesh [68]. In Bangladesh, the remittance market is hugely dominated by this hundi mechanism – a more profitable way to transfer cash from migrants to their non-migrant families at home [18]. Due to high fees and poor conversion rates, many migrant workers and professionals bypass the traditional banking system and rely on the highly organized informal hundi mechanism, which is founded on social infrastructure comprised of cultural and symbolic ties [68]. In this system, the migrant worker transfers their funds to intermediaries abroad (known as hundiwala), who then facilitate the payment of local currency to the family members at home, thus bypassing the formal legal remittance channel [68].

Our study is informed by this rich body of literature related to informal markets in the Global South and local informal economic practices in Bangladesh. We seek to investigate how the informal thrives in the interstice of the formal economy by examining the trading and mining practices of the cryptocurrency adopters in Bangladesh.

3 METHOD

Our study explores the motivations of traders and miners in Bangladesh, their risk perceptions, and the practices they follow to bypass the regulations. We started with a pilot study (n=2) to test the interview protocol (in Appendix A.1), followed by final round of interviews (n=28).

3.1 Participant Recruitment

We leveraged our social capital to find four participants: one trader, one miner, and two who did both. From there we proceeded through snowball sampling. Participants were qualified to take part in our study if they met all three selection criteria: a) 18 years or older; b)

residence of Bangladesh; c) actively participating in cryptocurrency-related activities (e.g., mining, trading, staking, etc.) for at least six months. We translated our questionnaire into Bengali (the native language of Bangladesh) in cases where participants were comfortable speaking in Bengali. Participation in our study was voluntary, and participants were allowed to quit anytime. Each interview session lasted about an hour on average.

3.2 Semi-Structured Interview Procedure

We organized the interview into three sections. In first part, we inquired about individuals’ motivations for engaging with cryptocurrency when residing in Bangladesh. Additionally, we explored topics such as types of cryptocurrencies they currently possess, and their involvement in trading, mining, staking, and other related activities. Some example questions asked were, “*Could you recall the first time you became aware of cryptocurrencies and how you learned about them?*” Subsequently, we assessed their technical knowledge. For instance, we asked, “*To what extent are you familiar with the technical and cryptographic aspects of cryptocurrencies? ... Can you elaborate on your comprehension of the relationship between gas fees and transaction speed in crypto trading?*”

In the second part, we posed a series of questions to explore participants’ strategies and tools for managing cryptocurrency, including usage of devices, anonymous sites, and other resources. To gather rich anecdotal data, we also asked them to share their personal experiences and stories about their past interactions with cryptocurrency. Similar to the pilot study, we requested the participants to conduct a screen share and walk us through the procedure if they felt comfortable. We also encouraged them to think aloud during the demonstration. Sample questions for this activity included, “*Could you guide me through the process of mining/trading (or both, based on their response) cryptocurrency? Can you screen share and narrate your thought process while demonstrating the applications/devices you use for mining/trading? Given the restrictions on cryptocurrency in Bangladesh, what specific devices and applications do you use to engage with cryptocurrency-related activities?*” For participants who were uncomfortable with screen-sharing, we asked them to explain the step-by-step process of setting up their devices and connecting to a specific server for mining/trading, up to the point when they convert it into Bangladeshi currency.

In the third part, we asked the participants about their risk perceptions in an open-ended manner, followed by presenting them with a list of risks associated with each cryptocurrency-related activity they mentioned earlier. We asked them to provide explanations based on their own experiences or incidents encountered by the people they know. For example, we asked, “*Have you personally faced any incidents related to the risks mentioned earlier? If so, could you please share the details of your experience? Have you heard about any similar experiences from your friends?*” Subsequently, we sought to understand their current mitigation strategies for these risks and their expectations for addressing them. We asked, “*What actions have you taken following those incidents? Did you change the way you engage with cryptocurrency? How would you like these risks to be addressed in the context of crypto mining/trading?*” (interview script in Appendix B).

3.3 Data Analysis

Study data was obtained primarily through Zoom audio/video of the interviews upon participants’ permission. Two researchers, both native Bengali, translated the transcripts into English. We then performed thematic analysis on our transcriptions [34]. Two researchers independently read through 20% of the interview transcripts, developed codes, and compared them until we developed a consistent codebook. We met regularly to discuss the coding and agreed on a shared codebook before coding the remaining data. After completing coding for all interviews, both researchers spot-checked the other’s coded transcripts and did not find any inconsistencies. We calculated the inter-coder reliability (Cohen’s Kappa: .89), which is considered good [35]. We followed an open coding and inductive analysis method to explore the participants’ perceptions, practices, and challenges of cryptocurrency adoption in Bangladesh. We grouped lower-level codes into sub-themes and further extracted the main themes. We iterated this process to extract the final set of themes to interpret the results of participants’ perceptions, concerns, individual experiences, and challenges with cryptocurrency. Two example themes are: “no regulatory implications for less amount of withdrawal,” and “electricity shortage.”

3.4 Ethical Considerations and Positionality

All the members of our research team, except one, were born and raised in Bangladesh and we are familiar with the local customs. Although we are very much familiar with the underlying technology, we have not personally undertaken any cryptocurrency-related activities in Bangladesh outside our research interest. However, as explained in Section 2.2.1 and throughout our paper – the legal nuances are ambiguous in this regard and consequently, we frame our work as an attempt to explore how the local people circumvent the hostile environment and infrastructural limitations to interact with this new technology. Our research protocol went through a rigorous process to obtain the local IRB approval. We did not collect any personally identifiable information from our participants and we made sure that they felt safe during the interviews. We feel that the potential benefits of this work are significant as it reveals how traders and miners are susceptible to different types of unforeseen issues. Our results also highlight the importance of awareness campaigns on cryptocurrency and as such, we argue that the potential research value of this work outweighs the risks.

4 RESULTS

4.1 Participant Demographics

In total, 28 people participated (22 male and 6 female participants) in our study. The median age of our participants was 25. Among the participants, 16 of them had a technological background. Twelve of them got only involved in trading, while seven of them did both trading and mining. In total, seven participants were exclusively involved in mining. Only two participants reported about getting engaged in staking activities where one of them did both staking and trading. We note that the male/female ratio, mean/median age, and the technical proficiency of our participant pool is comparable to prior studies [19, 54]. A complete list of participants’ demographics and backgrounds is provided in Table 1.

4.2 Motivations of Cryptocurrency Adopters

Participants identified three primary motivations for engaging with cryptocurrencies: learning something new, prior experience with the conventional stock market, and the prospect of rapidly gaining profits or assets to achieve financial independence.

Several participants (P2, P7, P11, P14, P15, P19, P24, P27) expressed a desire to explore novel topics out of sheer curiosity. For instance, P7 remarked, “I was just curious, it was something new. I didn’t take trading seriously at all, just traded the coin according to the news that I saw.” Another participant (P1) drew parallels between cryptocurrency and stock tradings, suggesting a sense of familiarity, “Actually back then there was a hype that, people becoming millionaires and billionaires [...] Initially, it looked like a stock market to me.” A few (P1, P5, P14) highlighted the advantage of already possessing resources like GPUs and PCs – originally intended for gaming – which could be repurposed to supplement their income. Moreover, a significant number of participants (P1, P2, P3, P4, P6, P8, P9, P10, P11, P13, P19, P20, P21, P23, P25, P26) were driven by the potential of securing quick profits or assets, thereby achieving self-sufficiency. P11 reported, “My friend used to tell me that he earned 50,000 this month, 40,000 the previous month, and so on, so I was quite interested to know about whether all of these are actually true or not.” These responses clearly indicate that our participants delved into cryptocurrency out of curiosity or due to economic incentives.

Another implicit motivation for engagement (P19, P23, P26, P28) in cryptocurrency was physical well-being, exclusively among our female participants. P19 mentioned, “In the case of Sweatcoin, they offer some premium subscriptions, Netflix gift card, etc. I used to walk to fulfill the certain number of step count to get those premium subscriptions.” Similarly, P23 mentioned earning cryptocurrency through an application by squatting, running, and jumping. Based on the sensor readings of these activities, she used to receive cryptocurrency tokens.

4.3 Onboarding to Cryptocurrency

Participants in our study were onboarded to cryptocurrency trading and mining through two means: learning from friends and family as well as via online resources.

Help from Friends & Family Several participants (P3, P4, P7, P10, P11, P13, P14, P15, P18, P19, P20, P23, P24) mentioned that they were introduced to cryptocurrency by friends and family. P16 shared, “Around 2020, I first learned about cryptocurrency from my friends. Due to Covid, the university was closed. I had plenty of time and started to grow interest in cryptocurrency.” On a similar note, P7 began his journey with cryptocurrency through certain websites that rewarded users with crypto coins for completing CAPTCHAs. He recalled, “I had a senior who was on websites where if he does CAPTCHA multiple times, they give BNB coins.” P27 shared that she first learned about blockchain from her father, who began purchasing cryptocurrency as a way to secure assets for her future education. She later started trading in Ethereum (ETH) and Solana herself.

Online Channels & Resources Several participants discovered cryptocurrency through their gaming communities. P16 stated, “Being an avid gamer, I frequently use Discord. From gaming groups,

cryptocurrency piqued my interest. This led me to research on YouTube and other online platforms.” The majority of the participants highlighted their involvement in the local Bangladeshi Discord channels dedicated to miners and traders. They also mentioned joining international Discord servers as part of their onboarding process. P4 shared, “Initially, I became a member of a local Discord server. Later, I joined multiple international servers, including the Dogecoin server and KuCoin Telegram.” Additionally, participants cited various YouTube channels, such as *Technical Guruji*, and general online resources that helped their understanding of cryptocurrency. P2 said, “I first heard about cryptocurrency in 2017. My interest in mobile gadgets and global trends led me to follow an Indian YouTube channel called ‘Technical Guruji’. One of the videos discussed the rising price of Bitcoin and that’s how I started.”

5 RQ1: CURRENT PRACTICES OF CRYPTO USERS

Our study participants primarily got engaged in mining, trading, and staking. Reflecting the global trends and consistent with prior research [78], the participants interacted with the cryptocurrency ecosystem through a variety of applications. We describe the array of applications they predominantly use and also highlight the unique strategies adopted by them to sidestep the regulatory barriers.

5.1 Tools Used to Interact with Blockchain

5.1.1 Tools for Trading. Our participants used Q-Wallet (P3), Binance (P1,P7,P8,P9,P11,P13,P14,P18,P19,P20,P21,P22, P24), KuCoin(P9, P22, P23), and MetaTrader 4(P10) as their main client application for trading. The main reasons for using these applications are (a) lower barriers for providing different types of identification; and (b) lower conversion cost of their asset into cryptocurrencies or fiat currencies. As P9 reported, “I used Binance for P2P, also used KuCoin but never used Coinbase. Most Bangladeshi use these two.” The reasons for using Binance and KuCoin over others were because they were suggested by the community in the Discord channels or recommended by their friends.

While most participants at some point used popular non-custodial wallets, such as MetaMask, and custodial wallets, such as Coinbase, their usage did not sustain in those wallets due to the high gas fees and the requirement to verify identification with a physical ID, KYC process, etc. To illustrate this, P7 said, “I started trading in Coinbase but if you have less than 100 USD (1 USD = 120 BDT), you cannot trade in Coinbase. Furthermore, it requires me to verify with some form of ID. I wanted to start with trading small amounts hence I switched to Binance.” Some participants mentioned trusting Binance even if at a certain point it also required NID to verify the account, which is the same process as the Coinbase KYC process. Figure 1 illustrates the cryptocurrency engagement of a trader.

In summary, Binance clearly stood out as the favorite among our participants while Coinbase did not seem to be a sustainable option for them. We note that despite the prohibition on cryptocurrencies, both of these two popular exchanges can be directly accessed from Bangladesh.

5.1.2 Tools for Mining. Participants in our study used a diverse array of platforms and applications to perform crypto mining, including MicroBT(P4), NiceHash(P5, P14, P21, P23, P25), BTCash wallet (P4), *2miners.com*(P15, P21), Coinbase (P1, P17), Trust Wallet (P5), Binance (P1, P2, P16), What2Mine(P16), MetaMask (P15), Satoshi app for mining(P15). P4 said, “I took help from a bitcoin farm named MicroBT and joined a pool. I also used BTCash wallet because transactions are easy there.” P5 and P14 started with NiceHash because it was recommended by a friend. Another participant (P16) used 2miners.com because it was available to use from Bangladesh. Another reason for choosing a certain mining client is its optimal profit during mining, P16 said, “I used What2Mine website for mining because it was profitable back then and my friends were mining on that platform”. Some participants also value the additional features such as daily news on profit gain/loss prediction on Satoshi app. These responses demonstrate that participants had their own reasons for choosing a specific platform and no single platform dominated over others.

5.1.3 Tools for Staking. We have observed two participants (P22 and P28, both female) who were actively engaged in cryptocurrency staking, primarily driven by their long-term investment strategies. P22 utilized CarbonSwap and other tools. She said, “I spend time to understand the company and future prospects and stake money to it. I know there is still a risk, but in the long term, the gain can be higher.” P28, on the other hand, staked cryptocurrencies in gaming platforms. Notably, she mentioned an interesting aspect that highlights the innovative nature of blockchain-based applications, “You can stake by saying I will complete a task in ten days. If you cannot complete the task within the deadline, you lose. This makes me complete my task on time”.

5.2 Unique Strategies to Adopt the Ecosystem

5.2.1 Account Creation/Verification by the Under-aged. Several participants (P3, P4, P10, P11, P15) shared that they began exploring cryptocurrencies when they were still minors and not eligible for voting rights. Consequently, they did not have a National ID (NID). However, to trade crypto assets, platforms like Binance and Coinbase require users to verify their NID and facial identity. P11 detailed a unique workaround to bypass the laws, which can lead to certain regulatory risks. He stated, “To open an account, I needed to complete the NID verification. I didn’t have an NID so I used my mother’s. For the facial verification, I managed to convince her as well. She agreed because she didn’t understand what I was doing.” This scenario underscores the risks for the bystanders (like his mother), including financial liability, privacy violations, and the potential misuse of personal data.

5.2.2 Alternative Withdrawal & Deposit. Our participants employ various tactics to evade transaction monitoring by the authorities, aiming to sidestep regulatory repercussions and mitigate risks associated with the platform. Figure 2 illustrates one of the examples of such a transaction.

Use of Mobile Financial Service Apps: Several participants (P1, P5, P7, P8, P9, P11, P12, P14, P15, P16, P22, P24, P28) opted to open accounts on Binance and chose to deposit funds using the bKash² app instead of the traditional banking apps to avoid being

²bKash is the leading mobile financial service in Bangladesh

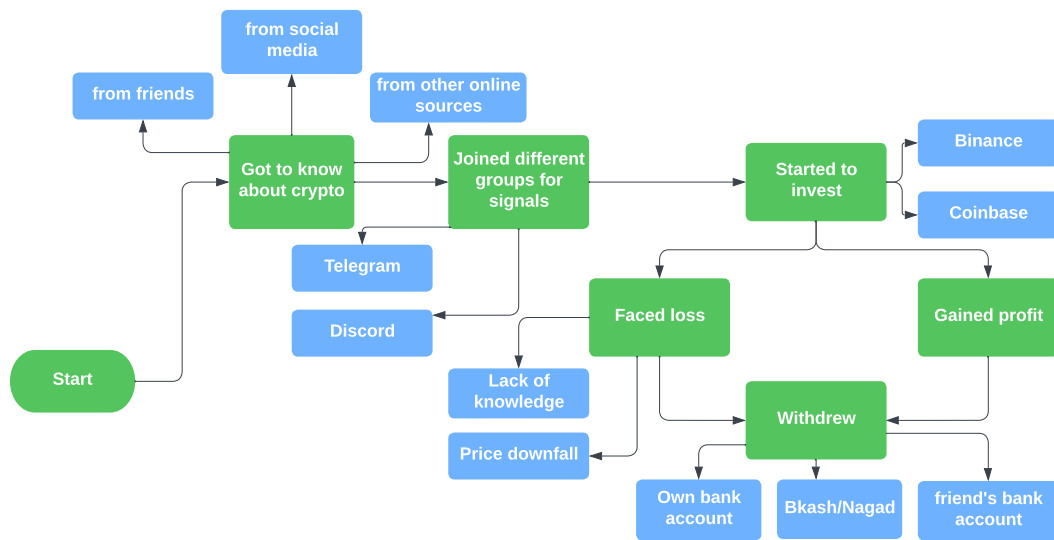


Figure 1: An example workflow of the crypto traders.

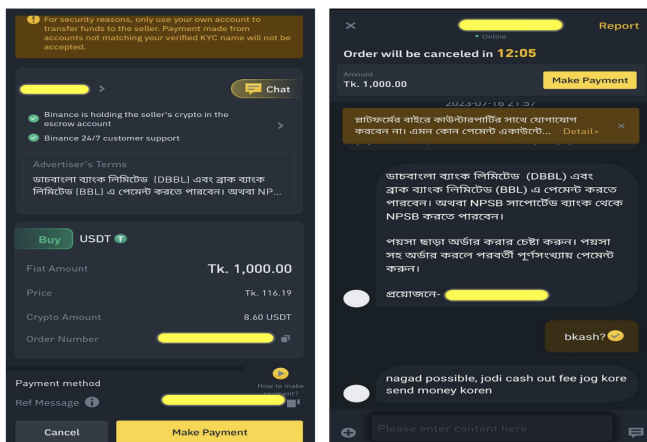


Figure 2: Screenshot of a user trading on Binance by using the community chat feature. In this scenario, the trader is negotiating with the broker of that chat room regarding which mobile financial service to use.

tracked. P16 remarked, “Binance doesn’t require any bank account. I used to transact through the bKash app.” He further noted that Binance offers options like bKash and Nagad – the two largest Mobile Financial Service apps in Bangladesh. Elaborating on this, P15 mentioned, “Binance provides options such as bKash, Nagad, and bank accounts specifically tailored for Bangladesh. I preferred cashing out via Nagad due to its favorable rates compared to other platforms.” He also shared that he would use bKash at different outlets and intentionally avoid revisiting the same store to sidestep potential issues with the law enforcement agency (e.g., police hassle)

³. Echoing similar tactics, P9 was even more prudent. He ensured that he would never use the bKash service linked to his personal number. Instead, he would use the bKash account of a distant store. He elaborated, “I always provided a bKash number of a store located far from my residence for transactions and ensured that I would never revisit that store. I withdraw substantial amounts, like 50,000 BDT each time and also employ the same method for selling.”

Using Friends Account-Inside or Outside of Bangladesh
Some participants (P2, P3, P10, P17, P18, P23, 26) opted to use their friends’ accounts to cash out their cryptocurrency holdings. Some even leveraged accounts of friends residing in the United States or other countries to avoid potential governmental risks. P17 explained, “My friend who lives outside Bangladesh helped me to transfer money to my bank account. I withdrew USD after conversion from crypto to his account and then he sent me in taka (local currency) to Bangladesh. It looked safer to me compared to other options.” This practice corresponds to the hundi mechanism of informally bringing funds from abroad. P2 highlighted this more explicitly, “On Binance, there is a system of person-to-person exchange, so if you send money to some particular bank account then they will buy the thing that you want. This is the system of sending money and there are also options available for receiving money but there are some risks related to it. If you get caught during the full process, you might have to go to jail. Still, there are alternative options available like using hundi you can also bring it to Bangladesh”. P2 also chose to use his friends’ accounts over those of family members due to the nature of the activity and did not want his family to know.

Using Multiple Bank Accounts Several participants (P4, P11, P15, P26) highlighted an alternative approach—distributing large sums across multiple bank accounts in smaller transactions to avoid

³In Bangladesh, even many roadside grocery stores facilitate cash withdrawals from bKash and Nagad without requiring any ID. These accounts are solely linked to mobile numbers, with no associated bank accounts.

raising suspicions. As P4 noted, *“There are restrictions from bank. I use multiple bank accounts so that my cash is divided into multiple accounts. In Bangladesh, withdrawing funds is risky as there is something like the ‘Money Laundering’ act. I divide my total amount into smaller amounts so that it becomes easy for me to withdraw.”*

Use of Third Party Some participants (P4, P5, P22, P28) relied on third-party applications as a workaround, and many opted for PayPal to cash out their cryptocurrency, despite PayPal not being officially supported in Bangladesh. P4 explained, *“It is easy. I can directly do transaction using BTCash to my PayPal account and then bring cash to bank account.”* Notably, even if certain financial apps were not officially supported in Bangladesh, these platforms seemingly offered features tailored for Bangladeshi users related to asset management. This approach, however, came with its own set of risks. A few participants, including P4 and P5, reported losing money during PayPal withdrawals, with the funds never reaching their bKash or bank accounts. P4 explained such an incident, *“It happened back in 2021. I converted some crypto into cash and wanted to transfer it to my bank account through PayPal. I put my bank account information but PayPal didn’t make the transfer. I still don’t know why PayPal didn’t make the transaction.”* As PayPal is not officially supported in Bangladesh, these individuals found themselves without recourse, unable to file a complaint or get access to customer support.

5.2.3 Culture & Trust Building Via Platform. Several participants (P1, P7, P8, P12, P17, P28) adopted unconventional and potentially riskier methods to trade. Instead of using the direct transaction features within the apps, they leveraged chat functions to identify potential buyers and sellers. This trend appears to be influenced by their cultural context, as many mentioned that a significant portion of sellers on platforms like Binance and KuCoin, within those specific chats, were from Bangladesh. P1 said, *“There are a lot of sellers of Binance and KuCoin in Bangladesh. There is a system that is prevalent there. If I send my coin to them, the broker (a designated system feature of the group) will store it. The buyer who is buying from me, if he sends me the money then the broker will transfer the coin to the buyer. So, the exchange was working like a middleman.”* In certain instances, this manual trading process became even more convoluted. P7 detailed an instance where he had to transfer money to Coinbase because the seller trusted only that platform, no other exchanges or platforms, despite their initial interaction occurring on a different exchange where they negotiated the trading deal. Similarly, P17 indicated that the selling party has more control in this unregulated market where trust is more important than the price as he said, *“Sometimes, I felt that the price of my seller was high compared to others, but I thought the amount was not significant, so I never switched to another seller. If I become greedy and go for a new seller who gives a better price, what if they run away with my money?”* These responses indicate that there is a power dynamics between the buyer and the seller. We further elaborate this in the Discussion section.

Another participant (P25) offered nuanced insights regarding the usage of the P2P feature in the exchanges for the purpose of sending money to Bangladesh from abroad. He said *“Some people whom I know have transferred money to Bangladesh using crypto. So in the USA you can easily buy crypto and then transfer this to*

Bangladesh through Binance. Binance has a P2P option so the receiver will be able to receive the money back. I mean the amount should be small because if the amount is too big, there can be an issue on the receiver end (in Bangladesh)”. When asked about the legal and ethical implications of this process, his response was *“Yes, I think this process is like a hundi process and hundi is illegal. I think any process where you send money without a proper channel is illegal. Still, people do it right? It is safe and also gives you a better rate, so I don’t think this is a big deal”*. As mentioned above, despite being illegal, hundi is an acceptable practice in the local culture of Bangladesh.

6 RQ2: USERS’ PERCEIVED RISK IN CRYPTOCURRENCY ECOSYSTEM

In this section, we present the perceived regulatory and non-regulatory risks by our participants. Whenever applicable, we also describe the risk mitigation strategies adopted by them.

6.1 Regulatory Risk & Misconceptions

Our participants have several misconceptions regarding the risks tied to local regulations.

Minor vs Major Transactions. Several participants (P3, P7, P11, P15, P17, P22, P24, P26) believe that the risk is proportional to the volume of cryptocurrency being traded or mined. For instance, P3 mentioned, *“I am not sure if there are any restrictions on large sums, but there is none for smaller amounts.”* Another interesting sentiment shared by the participants was that their trading amount is insignificant compared to other traders or miners in Bangladesh, leading them to believe that they would be less susceptible to regulatory risks. P17 shared, *“I know virtual currencies are illegal but my mining volume is minimal compared to others. So, I never feel I am breaking any rules.”*

Regulatory Confusions. Many of our participants (P1, P2, P3, P5, P8, P10, P13, P22, P25, P27) expressed confusion regarding the cryptocurrency regulations set forth by the Bangladesh Bank [3, 11]. This uncertainty influenced their perceptions of the risks associated with various crypto activities, such as trading, mining, and holding. Consequently, these misunderstandings led them to establish their own guidelines and engage in activities without fully grasping the legal implications. For instance, P10 believed that there would be no risk associated with holding cryptocurrencies. He stated, *“I wasn’t entirely sure, but from what I’ve heard, holding crypto is permissible, while trading it is prohibited in Bangladesh.”* Another participant, P5, derived a different understanding based on the bank’s ambiguous statements. He believed that while trading and spending cryptocurrency were illegal, the bank hadn’t made any explicit statements about mining, leading him to rationalize the associated risks differently. Some participants also hinted that they change their behaviors according to their own interpretations of the ever-changing crypto laws. P1 shared his story, *“I began mining before being aware of any governmental regulations and didn’t liquidate my mining rewards. It was only after the Bangladesh bank had clarified that owning crypto would be permissible that I began the liquidating process.”* This clearly demonstrates the misconception of that participant because Bangladesh Bank has never explicitly permitted owning cryptocurrencies. Another participant (P6) offered a unique perspective, highlighting the myriad of pressing issues in Bangladesh that might divert law enforcement’s attention

from activities like buying or selling NFTs, another form of crypto application.

Potential Legal Consequences of Mining vs. Trading. Some participants (P6, P8, P10, P14) gauged the potential risks based on their beliefs about how severely law enforcement might penalize specific crypto activities. These perceptions varied – while some feel that mining poses a greater legal threat, others believe that trading is riskier. For instance, P8 commented, *“I don’t believe someone would be imprisoned for trading. If someone is mining, they might face severe penalties. I’ve seen in certain gaming groups where people have purchased high-end GPUs for mining and there was a shortage of GPUs in the market affecting the gamers, which is the primary purpose of GPU.”* P8’s statement highlights a nuanced interpretation: he attributes the GPU market shortage as a potential reason for legal actions, rather than the actual act of using GPUs for crypto mining.

Confidence in the Underlying Technology. Several participants (P1, P6, P7, P15, P22, P23) felt immune to risks, attributing their confidence to the underlying technologies behind P2P transactions. They believed that these technologies shielded them from being detected or traced. P7 remarked, *“I had limited knowledge, but I was aware that cryptocurrency transactions are highly confidential and heavily encrypted. It seems nearly impossible for anyone to determine my activities or my location. It’s purely peer-to-peer.”*

6.2 Nonregulatory Risks & Mitigation

6.2.1 Electricity Shortage. Load shedding and the surge in electricity prices were primary concerns for our participants (P1, P2, P5, P8, P14, P16, P25), especially those involved in mining. P2 elaborated on the severity of the issue and how he mitigated the challenges in 2018 when load shedding was rampant. Initially, P2 set up mining PCs with six graphics cards, distributing three cards to each PC. Each card consumed about 200 watts, resulting in substantial power consumption. Generators were not a viable solution due to the delay between power cuts and the generator activation. P2 considered using an IPS, but it couldn’t produce the required power. Consequently, every time there was a power cut, P2 would receive a notification from NiceHash about the mining disruption. This meant frequently rushing back home to restart the mining process, which became a significant inconvenience. Another participant decided to quit mining altogether due to the escalating electricity costs in Bangladesh. P17 stated, *“I ceased mining operations because of the steep rise in electricity prices. It became a losing game for me. Even if I mined all day, I’d earn few dollars, and profitability of Ethereum mining was lower due to the layer 2 developments.”*

Our participants also indicated that the miners could potentially seek illegal means due to the prevalent electricity issues [29, 64, 70]. As P8 stated, *“The amount of electricity required for mining is unattainable. For mining with 10 GPUs, each costing 60,000-100,000 BDT and requiring 70-80 watts, one might resort to illicit means to secure such power discreetly.”* However, the participants did not seem to care about the environmental impacts of cryptocurrency mining. Notably, not a single participant involved in mining expressed concerns about the environmental impacts of mining.

6.2.2 Lack of Knowledge. Our participants (P7, P8, P9, P10, P11, P15) frequently cited a lack of understanding about cryptocurrency activities as a significant hurdle. This lack of knowledge is not only

technical but also related to trading. Except for two participants, no one else could correctly explain the underlying technology behind cryptocurrencies and the concepts such as blockchain, proof of work, or proof of stake. As P4 noted, *“I don’t have knowledge on blockchain technology. If I had enough knowledge, I could have achieved more. I wouldn’t have required to join a pool and share my earnings with others.”* They also did not have much knowledge of the current security landscape. None of the participants cited any of the high-profile hacking incidents that took place on different exchanges in the last few years. However, one participant (P6) talked about malicious links as he fell victim to malware related to phishing airdrop.

The participants were relatively more concerned about their lack of trading experience. P10 recounted his experience, *“I started trading with zero ideas, not smart enough to understand it properly by watching YouTube or Google videos. All I thought about was to start earning like my friends. I used to trade in the wrong way and faced loss. I couldn’t analyze the graph of price fluctuations.”* P7 echoed a similar sentiment, attributing his losses to insufficient research and delayed information. He shared, *“My decision to trade was impulsive, based on a few YouTube videos that, in hindsight, provided misleading information. I also missed out on timely information about a particular coin that was priced low. By the time I learned about it, the price had skyrocketed.”*

6.2.3 Phishing and Scams. Phishing and scams were identified as a challenge faced by the participants (P3, P4, P6, P8, P12, P13, P15, P26, P28). P4 shared his experience with scams, *“I’ve been scammed multiple times. A company introduced a coin similar to Bitcoin. They released these coins to the public, attracting miners and traders. But after accumulating a significant amount of currency, they vanished.”* He further cited an example of a company named Lunar introducing Lunar coin, which gained significant traction. However, the company eventually collapsed, leading many to believe it was a scam.

6.2.4 No rules and regulations of price fluctuation. The volatility of the cryptocurrency was a recurring theme among the participants (P1, P2, P3, P9, P11, P15, P17, P22, P26). P9 shared his sentiments by saying, *“Cryptocurrencies are inherently volatile, influenced by a few dominant figures active on platforms like Twitter. When a country legally accepts cryptocurrency, the price goes up and when another country declares it illegal, the price goes down.”* P3’s experience underscored the risks associated with the market’s unpredictability. He said, *“In my initial venture, I invested BDT 5,500 in KuCoin. I received signals indicating a price increase for a specific duration. Anticipating a prolonged bull market, I delayed selling, only to realize that by the time I decided to sell, the price had gone down to 1,500, big loss.”* These accounts emphasize the unpredictable nature of the cryptocurrency market, influenced by a myriad of factors, from influential individuals’ tweets to legal decisions by countries.

6.2.5 Decreasing Mining Rewards. Cryptocurrency mining rewards emerged as a significant challenge for the participants (P2, P4, P17). P2 highlighted multiple factors that influenced his decision to cease mining. He explained, *“Without 24/7 mining, it’s a loss project and electricity was an issue. The halving of Bitcoin rewards posed another challenge. With each Bitcoin halving, the reward gets halved. In late 2018, I anticipated a halving event in 2019, which could impact*

profitability. Many were unaware of this halving phenomenon. Given that mining was popular at the time, graphics card prices soared. I capitalized on this by selling my graphics card, which I had purchased for 30,000 taka early in 2018, for 45,000 taka after 8-9 months of use. This sale helped me offset the losses from load shedding and the impending halving.” These narratives highlight the evolving challenges in the cryptocurrency mining landscape, from external factors like load shedding to inherent system dynamics like bitcoin halving, and how users navigate these challenges to optimize their returns.

6.3 Gender-specific Risk Perceptions

We had six female participants, and they shared interesting perspectives about their experiences. In Bangladesh, economic and financial decisions are typically made by male heads of households, limiting women’s involvement or autonomy in financial decision-making [47, 62]. This lack of participation is evident in the crypto industry as well. As participant P19 pointed out, “We, women, always want to be on the safe side, always consulting the male head of the family before making financial decisions.” This type of behavior was observed among our participants, influencing women’s perceptions of risk in cryptocurrency adoption. A majority of the female participants expressed a persistent fear of losing money recklessly. Furthermore, P22 shed light on the social stigma associated with activities such as cryptocurrency trading, which is often seen as a form of gambling and considered unsuitable for women. She mentioned the prevalence of social stereotypes in Bangladesh, where women are expected to conform to specific roles and behaviors dictated by societal norms. Additionally, legal prohibition of cryptocurrency activities in the country further reinforces the perception of these activities as unconventional and potentially isolating for women.

P19 also noted that working outside home in a professional job is not widely recognized as a positive quality in Bangladeshi society. In her opinion, however, having a job outside home had provided her with the agency and impetus to undertake cryptocurrency trading initiatives. In her words, “I am already engaged in work outside the home, so cryptocurrency did not seem like an additional endeavor for me.” P23 further pointed out that women tend to adhere to religious rules more closely. As she explained, “Since I don’t follow any specific religion, my moral principles revolve around not causing harm to anyone and not earning money through unethical means. When it comes to cryptocurrency, I don’t perceive it as unjust, as I am not harming anybody and I don’t consider it as unethical. Also, I tend to be a bit more adventurous due to my lack of any religious beliefs.” To summarize, the risk perceptions of our female participants have been shaped by their cultural, social, and religious values.

We also found impressions related to financial inclusion in context of living in Bangladesh where often they face certain restrictions, not only from family, but also from the country’s government and the banking system. As P26 mentioned, “I received an offer to pursue my PhD overseas, but preparing to move has been challenging. I need to convert BDT to USD with bank endorsement, but the banks I’ve visited can only endorse a small amount due to the current economic situation and numerous restrictions. I wish I had more Ethereum in my account—what I have is mostly from airdrops and

DAO services. If I could invest in cryptocurrency, I’d have flexibility. Now, I have to ask several people overseas if they can loan me some initial dollars for housing, rent, and other expenses.” This situation highlights the challenges of financial inclusion in Bangladesh, particularly when individuals try to navigate both local restrictions and global opportunities. In this context, we see how traditional banking systems in Bangladesh, influenced by government regulations and economic conditions, can limit an individual’s financial mobility, especially when dealing with international transactions. Another participant, P28, discussed the corruption within some of the banks in Bangladesh. In her words, “I see some news on people not being able to withdraw their deposits from the mainstream banks. I don’t know how much I can trust the local banking system anymore. I find crypto as a freedom – even through the volatility – if I keep my asset long enough. At least I will not be losing things without reason all of a sudden from a bank.” These responses suggest that cryptocurrency could be a potential solution for financial freedom and protection from financial corruption.

7 DISCUSSION

7.1 Informal Markets and Trust

Our work joins the growing body of literature in HCI and related areas on understanding the functioning of informal markets in different parts of the world. According to Geertz, information scarcity is the major bottleneck in the informal markets [42]. Our data also shows that after getting acquainted to cryptocurrency through friends, family members, gaming communities, or gadget channels on YouTube, our participants struggle to find further reliable and timely information regarding trading, mining, or withdrawing funds. As documented in our findings, such lack of knowledge leads to poor trading patterns and financial losses. However, in our case, the situation is more complicated because unlike other informal markets where the buyers and sellers directly negotiate with each other by building personalized relationships based on informal local rules and social norms [42, 46], the cryptocurrency traders in our study rely on built-in chatbox features in Binance or KuCoin, which act as a middleman to facilitate the transactions between the anonymous buyers and sellers. Our data clearly shows that the power dynamics here is almost entirely governed by the selling party as there is little room for negotiation for the buyer. The method of payment is also dictated by the seller and often the seller makes the buyer use a second platform for payment although they had started the initial conversation on a different platform in the first place.

In regard to legality, our findings can be immediately connected to the existing literature on informal market in HCI. In informal markets around the world, market actors develop an alternative vision of legitimacy due to the absence of a robust legal infrastructure [26, 28, 40, 46]. In their analysis of “illegal” activities around the world, Schendel and Abrahams’s coined the contracted term “(il)licit” to describe the activities that are prohibited by existing laws and yet licit [84], because their nature is similar to socially acceptable informal activities. From our data, it can be seen that some of our participants employ hundi mechanism to bring their funds home. As mentioned before, hundi has become an acceptable practice in Bangladesh based on what the community believes is

socially legitimate rather than rigid definitions of law. Through this alternative version of legality and morality, we argue that interacting with cryptocurrencies would eventually move from “illegal” to “(il)licit” domain if the practice becomes more widespread among different communities in society, beyond the current group of young educated students and professionals.

We argue that in order to gain a comprehensive understanding of the practices of the traders and miners in regions such as Bangladesh where cryptocurrency trading is prohibited, the HCI community should focus on understanding how trust and morality are shaped in informal markets. At the same time, the relationship of the state to informality and illegality should be contextualized by considering local norms and values. This kind of conceptualization will advance the HCI community’s understanding of the “grey” markets and the associated actors who operate at the confluence of informal economy and ICT [69].

7.2 Folk Models and Cryptocurrency

Our findings support the folk model of cybersecurity [90], which suggests that the general users learn about new security and privacy technologies from people inside their inner circle – people whom they perceive as “in the know” about technology among their friends and family members. Almost half of our participants reported that they got acquainted with the cryptocurrency ecosystem through the help of their friends and family members. This trend aligns with the general inclination observed in the Global North, who are often onboarded into the decentralized finance platforms through recommendations from their friends and family members [78].

Prior literature suggests that although folk models tend to lead to erroneous decision-making [20], the concepts and ideas that constitute the folk models are shared among similar members of a culture [27]. In Bangladesh, petty crimes such as shoplifting or pickpocketing are often overlooked by law enforcement agencies as the amount of money involved is relatively low [16]. Similarly, bribing a small amount is a usual practice in government offices to get things done [92]. This essentially creates a general perception among the population that as long as the transaction amount is small, an illegal activity would be overlooked by authorities. Our data reflects this sentiment of the broader population as many of our participants feel that they are not violating any rules by trading or mining a small amount. This inaccurate interpretation of the law around cryptocurrency among our participants is a function of not just economic goals, but also the prevailing cultural and social trends associated with local folk models.

7.3 Ambiguity Regarding Local Regulations

From our data, it can be seen that there are many levels of ambiguity among our participants regarding the interpretation of cryptocurrency laws. While almost all the participants are in consensus that trading is illegal, most of them are confused about the mining laws and their perceptions vary – ranging from considering mining as completely legal to being worried about being imprisoned because of their mining activities. Similarly, some participants mistakenly assume that purchasing and holding cryptocurrency is absolutely

fine as long as they are not trading whereas others incorrectly interpret the law by presuming that trading in smaller amounts would help them avoid the legal ramifications.

This ambiguity is also extended to the institutional level as we observed that bKash and Nagad – the two major Mobile Financial Service (MFS) providers – offer support to cryptocurrency traders by integrating their services to the Binance platform, as reported by multiple participants in our study. The fact that Nagad is a subsidiary of Bangladesh Post Office – one of the major services run by the government – makes these regulatory and legal arguments more ambiguous. Furthermore, access to popular exchanges like Binance or Coinbase are not restricted in Bangladesh, which might lead many users to believe that cryptocurrency is not prohibited at all in Bangladesh. As a result, with almost non-existent infrastructural support, they invest in cryptocurrencies and become victims of unforeseen consequences. For example, one of our participants reported to have lost his funds from PayPal, which is a globally recognized payment processing system. However, as PayPal does not offer service in Bangladesh, he could not seek help from their customer support.

7.4 Motivations, Risk Perceptions, and Environmental Concerns

In regard to the motivations, our data shows that the interest of our male participants in cryptocurrency is purely economic. Due to their previous exposure to the stock market or out of pure curiosity, the participants ventured into this new area with the hope of achieving financial freedom. This resonates with the sentiments of the bitcoin users in Malaysia, as revealed in a prior study [73], but the Malaysian users have additional economic incentives such as protecting their savings against inflation and government intervention [73], which does not seem to be the case for our male participants. Similarly, unlike other prior studies [36, 53], not a single participant in our study mentioned “*decentralization*” or “*disruptive technology*” as their main motivation to pursue interest in cryptocurrencies. None of our participants raved about the technological breakthrough of the proof-of-work or any other underlying cryptographic mechanisms either. Prior work on social steganography in Bangladesh demonstrated a similar trend – users often use cryptographic methods in their daily lives without necessarily understanding the underlying technology [45].

Our female participants, on the other hand, demonstrated a more nuanced understanding of the crypto space. Their risk perceptions and motivations are also more diverse as they are not only entangled with social and religious arguments but also influenced by the consideration of physical well-being. Among all the participants, two reported about staking activities and four talked about physical well-being, and all of them are female. Additionally, the female participants talked about economic issues that go beyond simply making profits. They exhibited a heightened awareness regarding financial inclusion and local financial regulations. In Bangladesh, there is a huge crisis of US dollar where people largely rely on informal kerb markets to buy dollar at a significantly higher rate [6]. Due to financial irregularities and corruption, there is also a severe lack of confidence in the local banks, including the state-run ones [4]. These issues were almost exclusively reflected among the

female participants in our study. Future studies should be conducted with more female users to obtain a deeper understanding of the gender-specific issues in the crypto space in this region.

Finally, none of the miners who participated in our study expressed any concerns about the environmental impacts of mining cryptocurrencies. This finding is consistent with a prior study conducted with the AI/ML professionals in Bangladesh [65], where the participants reported that they do not prioritize environmental concerns when training their models.

7.5 Privacy and Security Vulnerabilities

While our participants rightfully pointed out about the regulatory and legal issues, price volatility, or coins becoming obsolete, they seemed to be blissfully unaware of the high-profile hacking incidents in the past from the exchanges. Although prior works in the Global North have revealed that users often neglect essential precautions such as robust key management, those users still possess a basic level of understanding about protecting their funds [19, 38]. Similarly, prior works conducted with the users in Saudi Arabia and Bahrain reveal that the traders have a reasonable understanding about the security features of the cryptocurrency wallets and key management [25], which is clearly missing among our participants. In fact, not a single participant reported using a hardware or cold wallet to protect their funds. We note that based on the existing literature, the main use case of hardware wallets is for secure storage for comparatively large amounts of cryptocurrency [54], instances when users make tradeoffs of security and usability [38] along with security awareness. Considering the amount of currency our participants hold, not using a hardware wallet can be attributed to the use case relevance rather than security awareness.

We found some interesting insights about the trust model adopted by our participants. Many of our participants use the P2P feature built-in within the chat box of some of the exchanges, which acts as a middleman to facilitate the buying and selling of coins between two different traders. Participants also rely on their friends from abroad to transfer and withdraw their funds. We argue that this practice puts those friends or family members in unnecessary danger without their knowledge or consent. For example, one of our participants tricked his mother into using her picture for facial verification. This could create mistrust among family members along with additional legal implications. The responses from some of our participants indicated that they have an inflated sense of security in the cryptocurrency ecosystem due to their confidence in the P2P technology. We note that BitTorrent and other P2P file-sharing protocols have been popular in Bangladesh for many years for the purpose of illegally sharing copyrighted movies, songs, and software. As a result, if the government eventually legalizes cryptocurrencies, we foresee a huge influx of cryptocurrency adopters in Bangladesh due to their confidence and trust in peer-to-peer protocols, many of whom would lack the knowledge to take necessary precautions to protect their funds.

7.6 Cryptocurrency Education and Awareness

Our study results generate a few immediate concerns that highlight the importance of cryptocurrency education and awareness programs in Bangladesh. For example, our study reveals that the regulations concerning digital currencies have not been effectively

communicated to the general public in Bangladesh. Many of our participants were uncertain about where to find detailed information, often relying on secondary sources to build their understanding. In numerous instances, our participants were unclear about the reasons for prohibiting cryptocurrencies and their broader implications on the nation's economy or other potential negative effects of cryptocurrency. Furthermore, Bangladesh has recently become a hotbed of large-scale online scams [2], primarily because of the gullibility of the mass population towards the get-rich-quick schemes. Since our data shows that user incentives for adopting cryptocurrencies are almost entirely economic, we suspect that legalizing cryptocurrency could pave the way for many swindlers to dupe the mass population into investing in their scam cryptocurrency projects.

We believe that the HCI community can intervene in designing platforms for promoting cryptocurrency awareness and education among the population in Bangladesh and South Asia by leveraging the findings from the previous studies on designing novel tools for these population [55, 85]. We provide a concrete suggestion in this regard. Since the blockchain technology has resulted in a huge technological hype in Bangladesh [15], with numerous startup projects being undertaken both in public and private sectors [5], one possible direction could be to leverage the training workshops on blockchain technology to disseminate security and cryptography knowledge among the participants. We plan to work on this in the future.

8 LIMITATIONS

Our study has a few limitations. First, we only recruited from one South Asian country, and as such, the findings may not be generalizable to users from other South Asian countries. Second, as we recruited participants through snowball sampling, the diversity of our sample size is constrained by our social capital and mainly consists of the younger population. Third, while we tried our best to follow the practices of interview study, we acknowledge that our understanding was limited by our non-membership in the community. Finally, the scope of our work is only limited to cryptocurrency traders and miners, we did not interview any cryptocurrency enthusiasts who are entrepreneurs, programmers, and contributing to the space in different capacities. In the future, we plan to recruit this new group to supplement our current findings.

9 CONCLUSION

We conducted semi-structured interviews with cryptocurrency traders and miners in Bangladesh to explore their motivations, risk perceptions, and strategies to bypass the hostile regulations and infrastructural limitations. We have studied how the users from this region use innovative methods to trade and mine cryptocurrencies, withdraw their funds, and navigate through an ambiguous regulatory landscape according to their own interpretations of the local laws. In doing so, they face many unforeseen circumstances and we have provided a situated understanding of a few such incidents. We also connected our findings to the related literature in HCI regarding informal markets, legality, folk models, and privacy and security.

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A METHOD

A.1 Pilot Study

We conducted a preliminary study involving two participants to obtain feedback on our research protocol. During the pilot study, we asked the participants about their motivation for adopting cryptocurrency and their involvement in various cryptocurrency-related activities despite the regulatory prohibition on cryptocurrency in Bangladesh. For example, we inquired, "Could you please describe the process of mining cryptocurrency?" We also asked them to share their screen to walk us through the usage of applications or devices for mining. However, in instances where they were uncomfortable with screen sharing, they provided a verbal step-by-step explanation. Additionally, we asked the participants about the challenges they faced when engaging in different cryptocurrency activities such as mining or trading, as well as their level of technical knowledge regarding cryptocurrency.

During the pilot interviews, participants brought up various types of risks associated with price volatility, regulation, and energy consumption, in response to some follow-up questions on open-ended risk questions "When you are doing trading/mining/staking, What can potentially go wrong with your crypto assets? Can you think of any risks that can happen?". Consequently, we revised our interview protocol to include a new section where we asked participants about their concerns about various risks as well as those they already encountered. We followed up with a list of common example risks associated with crypto mining/trading/others and

asked “Please select the risks that are relevant to you, and explain why you are concerned about these risks.” This section was designed to assess participants’ comprehension of the perceived and experienced risks within the specific geographical context of Bangladesh and its current socio-economic status.

B INTERVIEW QUESTIONS

General Section: What are the motivations of cryptocurrency adopters in Bangladesh?

- (1) Can you remember the first time you got to know about cryptocurrency?
 - (a) Follow-up: how did you get to know cryptocurrencies?
 - (b) Follow-up: Is it through friends/family/on your own?
- (2) What do you primarily use cryptocurrency for?
 - (a) Trading, Staking, Investment, Mining , Other
 - (b) Follow up: How long have you been trading/mining crypto trading?
 - (c) Follow-up: What is your motivation to start crypto trading/mining?
 - (d) Follow-up: What is your motivation now?
- (3) What cryptocurrencies are you trading/ mining? Why?
 - (a) Follow-up: Can you explain why you choose to trade/mine these certain cryptocurrency?
- (4) Are there any other crypto tokens you are trading besides the popular cryptocurrencies? Like NFTs, DAO token, etc?
- (5) Can you define what cryptocurrency is to you? Not necessarily the technical definition?
- (6) How much do you know about the technical/cryptographic aspects of cryptocurrencies?
- (7) Can you explain your understanding of the relationship between gas fees and transaction speed when trading crypto?

Current practices of crypto users in Bangladesh?

- (1) What crypto management tools have you used and using currently?
- (2) Which exchanges are you using to trade/mine cryptocurrency? Can you share one of your recent experiences using exchange (coinbase, binance, etc.)?
- (3) Which wallets did you use? Can you share one of your recent experiences using a wallet (coinbase, metamas, etc)?
- (4) Can you walk me through the process of mining/trading or both (based on their response) cryptocurrency? Can you screen share and think aloud about how and what application / device you use for mining?
- (5) Since cryptocurrency is banned in Bangladesh, What are the specific devices, applications you use to engage with cryptocurrency and related activities?
 - (a) How do you mine cryptocurrency, given that it’s banned from govt.?
 - (i) Follow-up: Are you using any specific site/vpn to access it? Can you please explain the process.
 - (ii) Follow-up: How did you come to know about this application, sites and the process?
 - (iii) Follow-up: Are you mining for any specific organization? Is it in Bangladesh or outside?
 - (b) How do they trade cryptocurrency, given that it is banned from govt.?

- (i) Follow-up: Are you using any specific site/vpn to access it? Can you please explain the process.
- (ii) Follow-up: How did you come to know about this application, sites and the process?

Perceived risk(privacy/security/financial)

- (1) When you are doing trading/mining/staking, What can potentially go wrong with your crypto assets? Can you think of any risks that can happen?
- (2) I have a couple of examples of the risk of crypto mining/trading/others: Please select risks that are relevant to you. Please explain why you are concerned about these risks.
 - **Mining**
 - High energy consumption
 - Hardware and maintenance costs
 - Mining difficulty and competition
 - Regulatory and legal risks
 - Security risk
 - Market saturation (mining rewards are distributed among a larger pool of participants)
 - **Trading**
 - Market Volatility
 - Loss of crypto asset
 - Lack of Knowledge and Experience
 - Regulatory and Legal Risks
 - Phishing and scams
 - Other threats not mentioned above
- (3) Have you encountered any incidents related to these risks (selected before)? Could you please share details about your experience if any? Have you heard of any related experiences from your friends?
- (4) What actions have you taken after that? Has this incident changed the way you used to engage with cryptocurrency?
- (5) How do you expect this risk to be addressed in crypto mining/trading for developing countries? Any ideas?

Challenges faced during cryptocurrency (mining/trading)?

- (1) What are some challenges you faced during trading/mining? Can you provide an example of that issue?
- (2) Is there anything that demotivated you for crypto trading/mining? Can you share your experience of crypto trading while living in Bangladesh?
- (3) Are you currently in any crypto community group? Can you share your thoughts on what other traders might be facing difficulties with?
- (4) Given that Crypto Trading/Mining is illegal in Bangladesh, Did you ever think about any possible consequences of this?

<i>ID</i>	<i>Gender</i>	<i>Age Range</i>	<i>Occupation</i>	<i>Educational Background</i>	<i>Technological Background</i>	<i>Activity</i>
P1	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Trading, Mining
P2	Male	30-35	Teacher	Bachelor's degree	YES	Mining
P3	Male	25-29	Student	Enrolled in B.Sc or equivalent	YES	Trading, Mining
P4	Male	18-24	Student	College level	YES	Trading, Mining
P5	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Mining
P6	Male	18-24	Student	Enrolled in B.Sc or equivalent	YES	Trading
P7	Male	25-29	Software Engineer	Bachelor's degree	YES	Trading
P8	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Trading
P9	Male	25-29	Part-time job	Bachelor's degree	YES	Trading
P10	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Trading
P11	Male	18-24	Student	College level	NO	Trading
P12	Male	18-24	Software Engineer	Bachelor's degree	YES	Trading
P13	Male	25-29	Software Engineer	Bachelor's degree	YES	Trading
P14	Male	25-29	Student	Enrolled in B.Sc or equivalent	NO	Mining
P15	Male	18-24	Student	College level	NO	Mining
P16	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Mining
P17	Male	18-24	Student	Enrolled in B.Sc or equivalent	NO	Trading, Mining
P18	Male	25-29	Job holder	Bachelor's degree	YES	Trading
P19	Female	25-29	Job holder	Master's degree	YES	Mining
P20	Male	18-24	Job holder	Bachelor's degree	NO	Trading
P21	Male	18-24	Student	Enrolled in B.Sc or equivalent	YES	Trading, Mining
P22	Female	25-29	Job holder	Bachelor's degree	YES	Staking
P23	Female	30-35	Job holder	Master's degree	NO	Trading, Mining
P24	Male	30-35	Job holder	Master's degree	YES	Trading
P25	Male	25-29	Job holder	Bachelor's degree	YES	Mining
P26	Female	25-29	Job holder	Enrolled in PhD Degree	YES	Trading, Mining
P27	Female	18-24	Student	Enrolled in B.Sc or equivalent	Yes	Trading
P28	Female	25-29	Job holder	Bachelor's degree	NO	Trading, Staking

Table 1: Participant demographics and background.