CUTS International

Understanding Consumers Perspective on Encryption in India

Project Website available here

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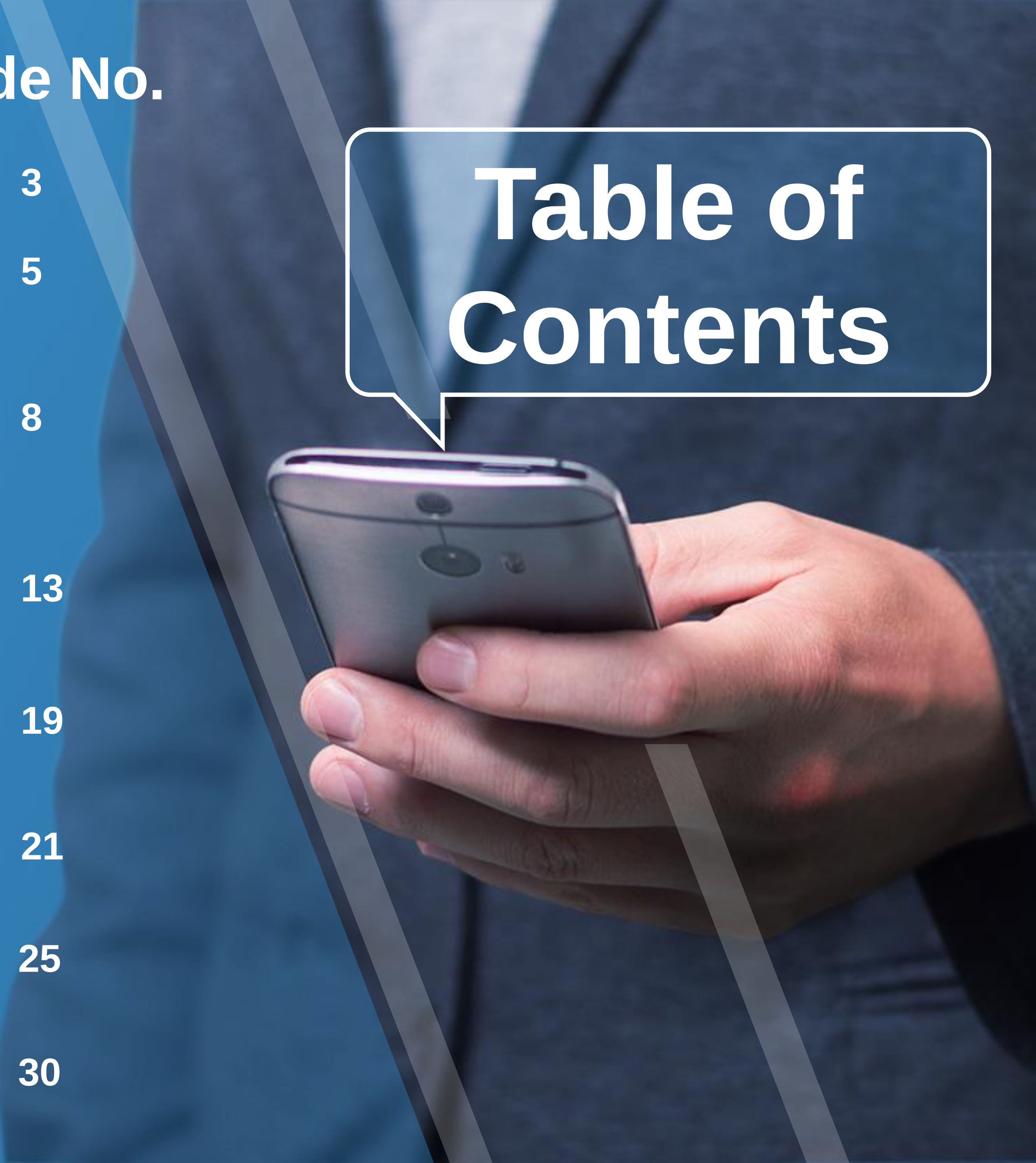


Project Background

One of the unique features of instant messaging service is that it ensures privacy and anonymity, which enables security in communication. This privacy and security over instant messaging services are made possible through end to end (E2E) encryption technology.

It is not clear if consumers are aware of the role of E2E Encryption in securing communication, enhancing privacy and upholding free speech. Limited literature exists on consumers’ perspectives (awareness, perceptions, purposes, experiences, utility they derive, and expectations) of secured communication services, particularly in developing countries like India. This prompts a study on the subject

The role of consumers in preventing misuse of secured communication services has also been ignored and underestimated. There is therefore a need to understand how consumers deal with problematic content on communication services.

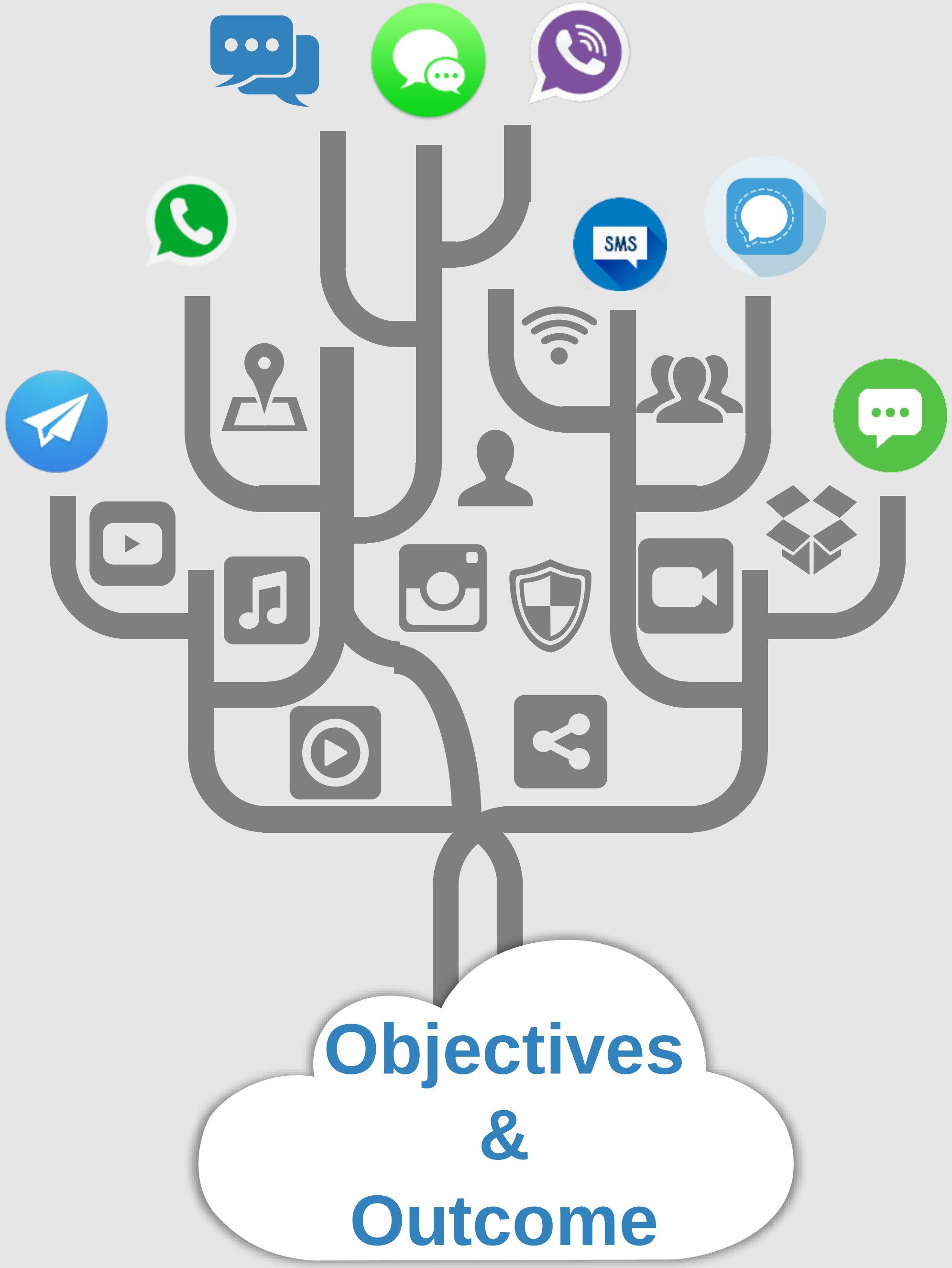
Project Objectives

The primary objective of the study is to bring forth a consumer perspective on secured communication services and E2E Encryption. This was done by checking consumers:

- ➢ Awareness, perception, experience, and utility derived from using secured communication services;
- ➢ Exposure towards problematic content on E2E Encrypted services.
- ➢ Reaction *wrt* usage of and trust on E2E Encrypted Instant Messaging Services, in case encryption is removed.

Envisaged Outcome

Better understanding among relevant stakeholders (industry, policy influencers, etc.) on consumers perspectives on E2E Encryption.



Objectives
&
Outcome

Summary of Key Findings & Recommendations

Key Findings

45%

45% of the respondents claimed to have wondered, whether instant messaging service providers can access their messages.

1 in 250

Only 1 in 250 respondents accurately understood the role of E2E Encryption in securing the privacy of their chats.

57%

Only 57% of the respondents claimed to know, how to change the privacy settings of instant messaging services.

61%

Only 61% of the respondents believed that their chats are E2E encrypted, even though all respondents claimed to be using WhatsApp.

57%

57% of the respondents were under the misconception that they get personalised ads on digital platforms, based on their chats on E2E Instant Messaging services.

Recommendations

Need for Awareness Generation on E2E Encryption, & In-depth Interaction with Consumers to Verify Claims

Key Findings (after informing respondents about the meaning of E2E Encryption)

₹1

On an average, respondents claimed to be willing to pay INR 1 per day, for E2E Encryption, i.e. for ensuring the privacy of their conversations.

19%

Respondents were likely to reduce exchanging different information with different contacts by 19%, if E2E Encryption is removed.

27%

Respondents were 27% more likely to completely stop exchanging different information with different contacts, if E2E Encryption is removed.

75%

Respondents perceived likelihood of unintended recipients accessing their chats increased by 75%, if E2E Encryption is removed.

13%

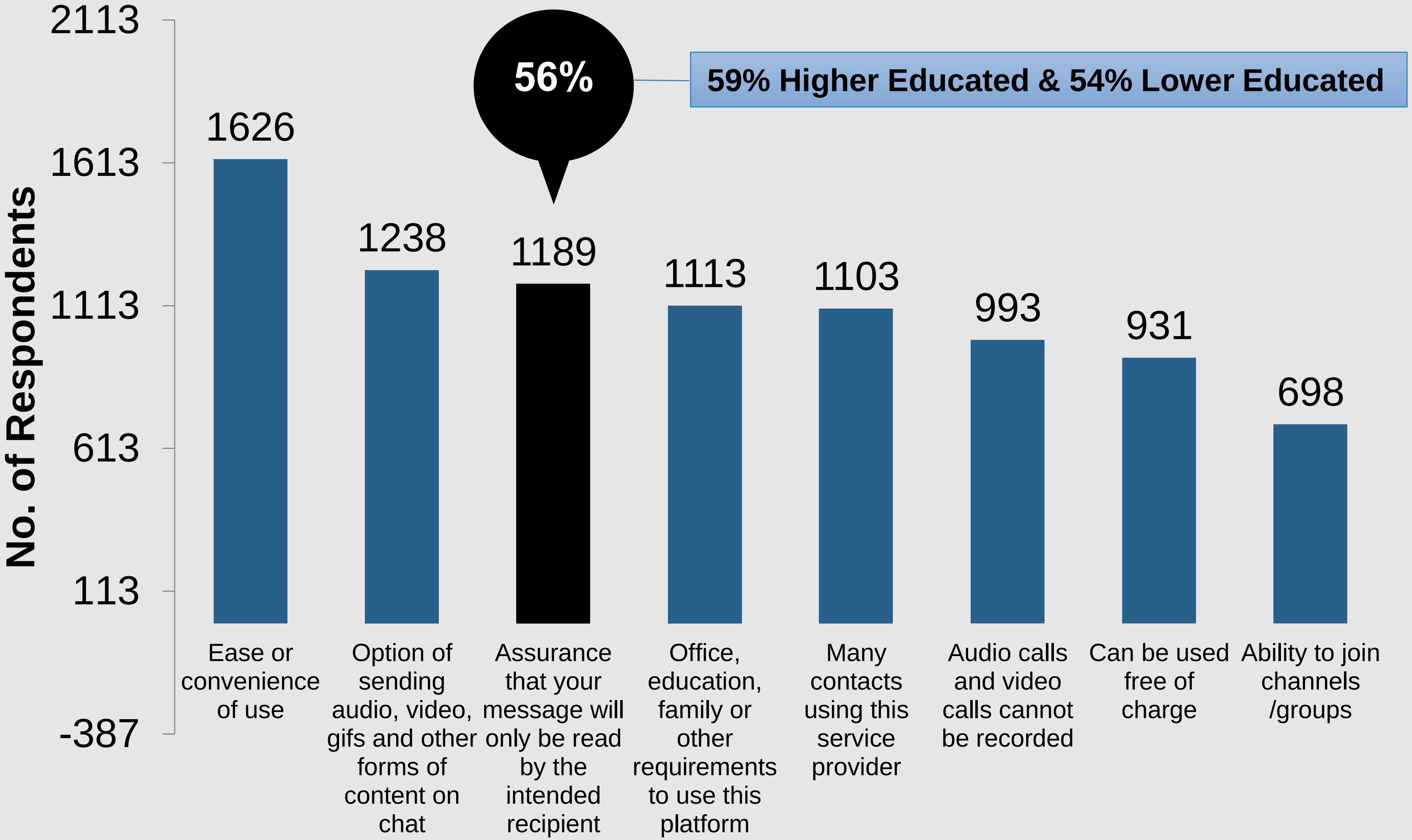
E2E Encrypted Instant Messaging Platforms contributed only 13% to respondents total exposure to problematic content, in contrast to 87% though Unencrypted platforms like social media & search engines.

Recommendations

Need to Continue with E2E Encryption on Instant Messaging Services, & Providers to see E2E Encryption as a Business Advantage

Consumers Privacy Preferences & Perceptions towards Instant Messengers

Perceived Advantages of Using Instant Messaging Services


No. of Respondents
2113
1613
1113
613
113
-387
1626
1238
1189
1113
1103
993
931
698
56%
59% Higher Educated & 54% Lower Educated
Ease or convenience of use
Option of sending audio, video, gifs and other forms of content on chat
Assurance that your message will only be read by the intended recipient
Office, education, family or other requirements to use this platform
Many contacts using this service provider
Audio calls and video calls cannot be recorded
Can be used free of charge
Ability to join channels /groups

Respondents perceive Privacy as the third most important benefit of using Instant Messaging Services with 56% choosing the option

Why do you use instant messaging services?

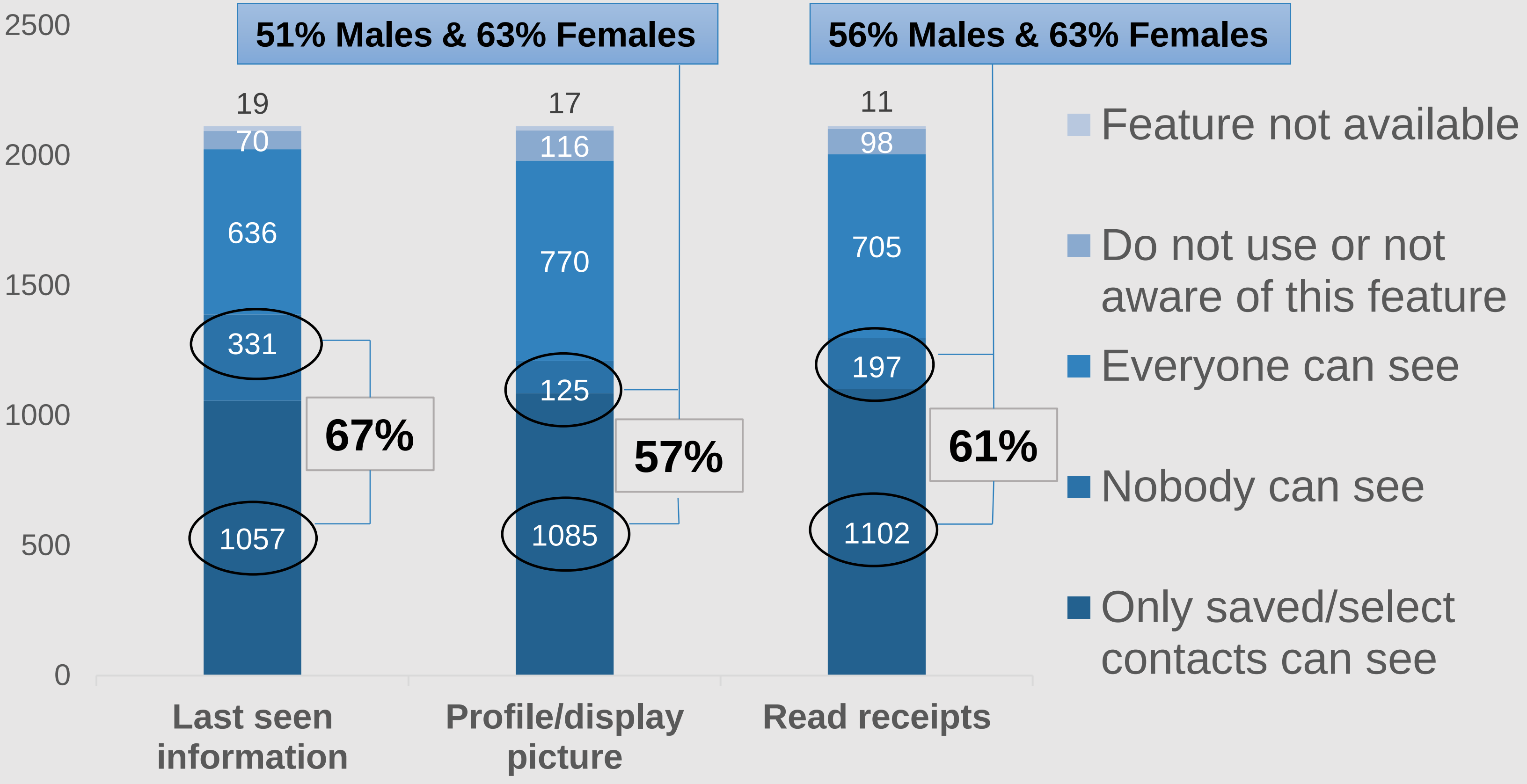
* This was a multiple choice question, i.e., respondents were free to choose more than one advantage of using instant messaging services.

Consumers Privacy Preferences

Notably, WhatsApp by default allows any user to view other users last seen information, profile/display picture and read recipients.
Notably, many respondents claimed to have changed the same to restrict this information to be visible to their contacts.

The responses of 'feature not available', and 'not aware of this feature' points towards lack of awareness amongst such respondents, on the privacy features of instant messaging service providers.

As per the 'privacy' settings chosen by you in your instant messaging services, who can see the following details?



Most respondents claimed to be privacy conscious, as they either chose to keep the above information private, or shared it with only with their saved contacts.

Consumers Privacy Perceptions

Please answer with Yes or No, for the following questions, with respect to privacy on instant messaging services.

62% Higher Educated & 55% Lower Educated

Respondents claimed to know how to change the privacy settings of their instant messenger

60% Higher Educated & 57% Lower Educated

Respondents believed that they get personalized ads on other digital platforms, based on their chats.

45%

Respondents claimed to have pondered upon whether instant messaging service provider can view their conversations.

46% Higher Educated & 42% Lower Educated

Respondents claimed to have heard about Bollywood celebrities' chats being accessed by the government, which made them vary about the privacy of their chats.

37% Males & 41% Females

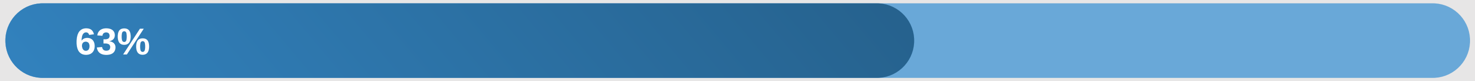
Claimed to have had a conversation with their friends/family on the privacy settings of their instant messenger.

Many respondents claimed to be sensitive/conscious towards privacy considerations of using instant messaging service providers.

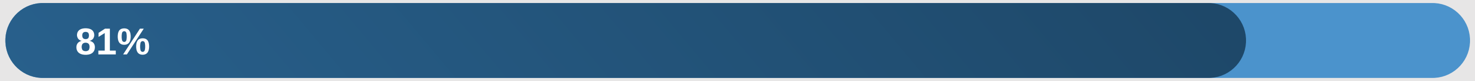
Consumers Lack of Awareness towards Encryption

Do you think your chats and calls on instant messaging services are end to end encrypted?

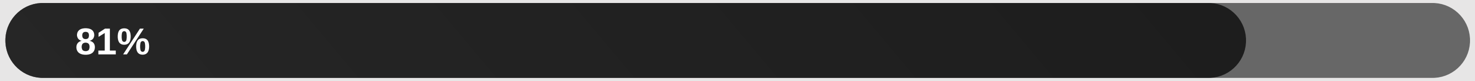
61% of respondents believed that their chats are end-to-end encrypted. However, most respondents were confused about its role. While **63%** of these respondents correctly identified its role in securing their chats, they also believed that encryption enables other benefits as well. Only **3 Male and 6 Female respondents** chose the correct option exclusively.



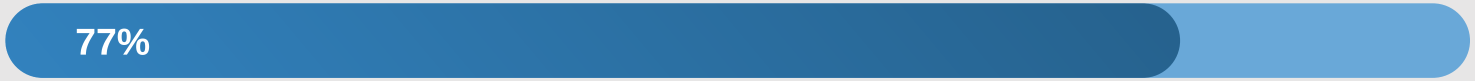
63% of the above respondents claimed to know that end-to-end encryption prevents unintended recipients from accessing their chats or calls.



81% of the above respondents believed that it allows them to use instant messaging services on multiple devices - desktop, laptop, tablet, mobile.



81% of the above respondents were under the misconception that it allows them to make a business account, or groups, or channels on the instant messaging service.



77% of the above respondents thought that it provides the technology used for sending audio, video, gifs and other forms of content on chats.

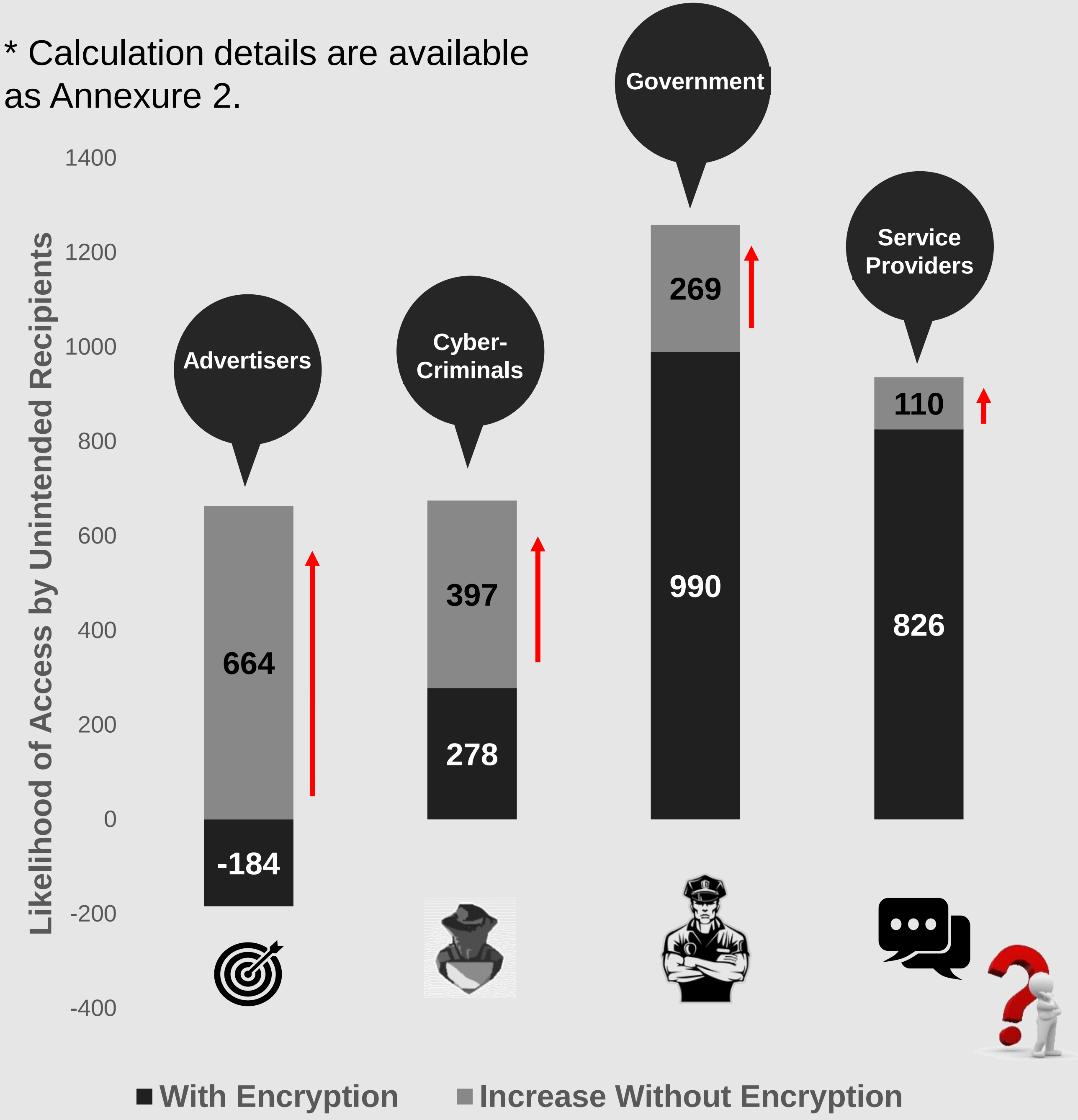
Only 1 in 250 respondents knew the correct role of E2E Encryption

Please answer whether you believe the following statements to be true or false, with respect to the role of end to end encryption.

* This was a multiple choice question, i.e., respondents were free to choose more than one role of end-to-end encryption.

Impact of removing Encryption on Consumers Trust & Usage of Instant Messaging Services

* Calculation details are available as Annexure 2.



Respondents fear an Increase in Likelihood of Unintended Recipients Accessing their Chats in case Encryption is Removed

Respondents believed that there was no likelihood of third-parties such as advertisers gaining access to their chats, and perceived little likelihood of suspicious third parties like cyber-criminals, gaining access to their chats, if E2E Encrypted.

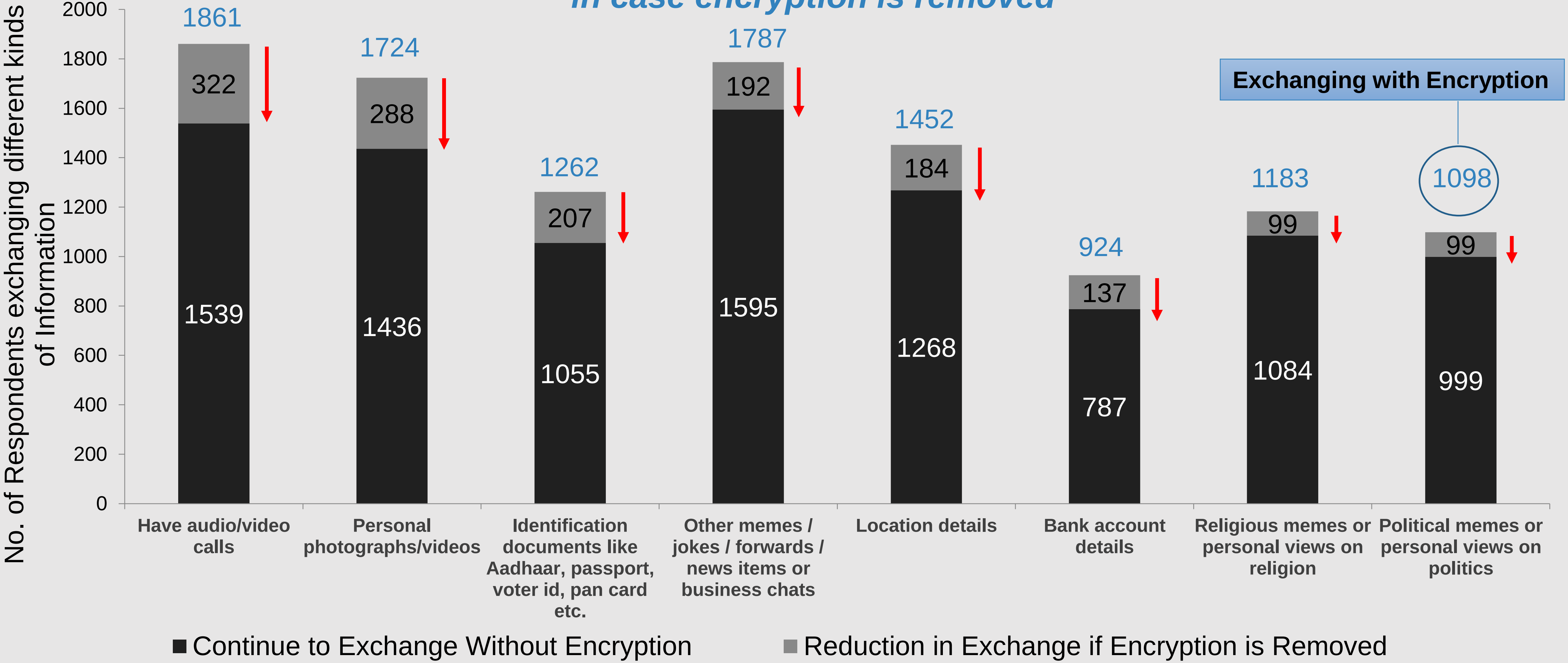
However, with respect to the government (law enforcement agencies) and service providers, respondents feared that their existed substantial likelihood of them gaining access to their chats, even if their chats remained E2E Encrypted.

Respondents perceived likelihood of unauthorized access increases sharply, in case E2E Encryption is removed.

Given that your chats are end to end encrypted, which of the following do you think can still access your instant messaging chats, even if they are not the intended recipients?

Hypothetically, if end to end encryption is removed, which of the following do you think will be able to access your chats and calls, even if they are not the intended recipients?

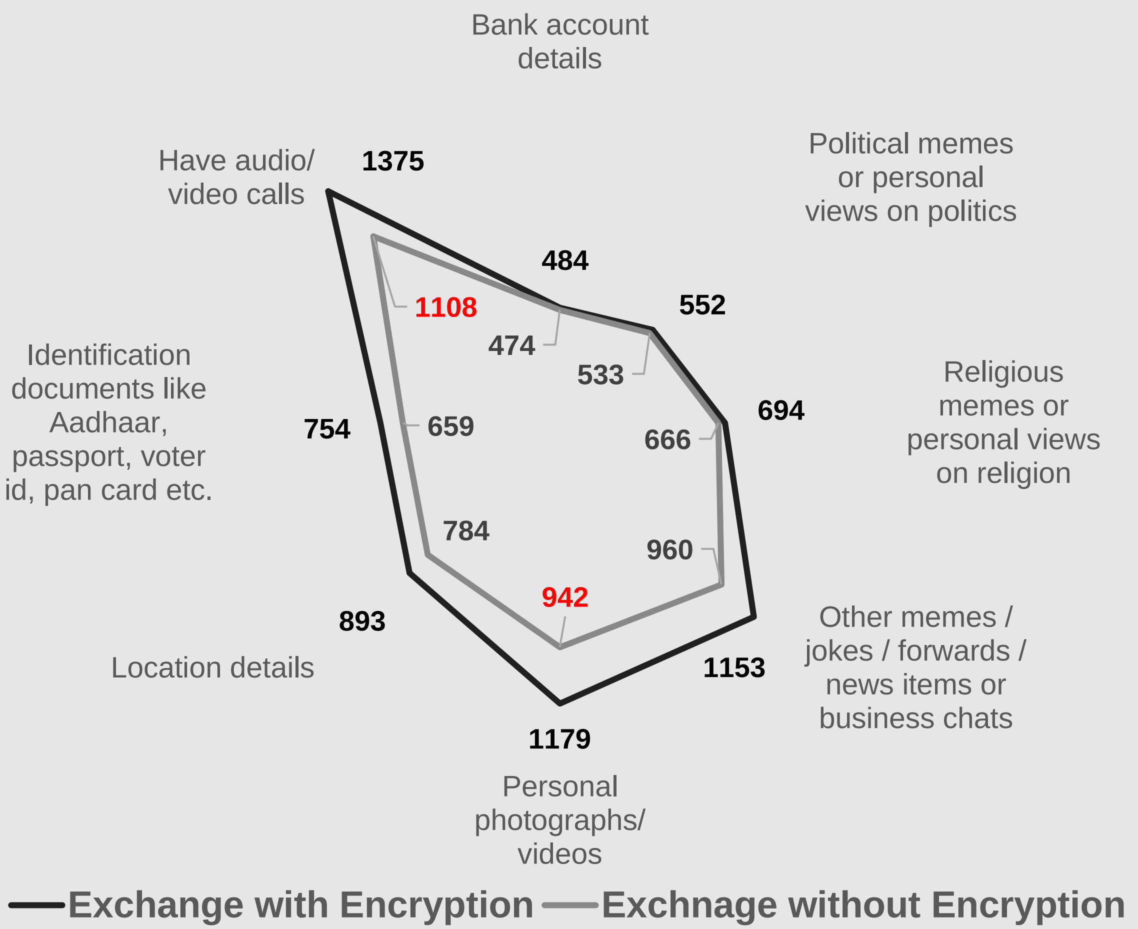
Many respondents are likely to stop exchanging different kinds of information, in case encryption is removed



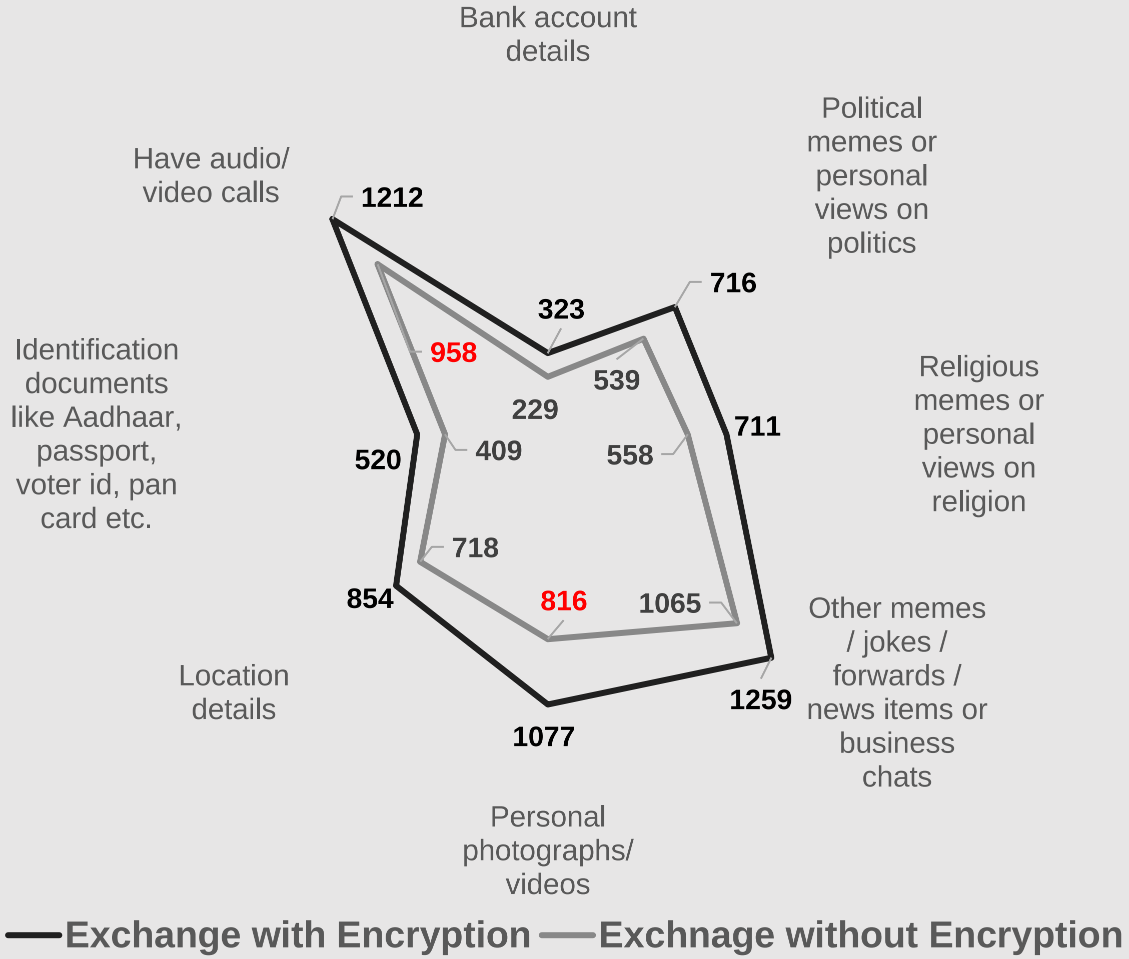
* Respondents were explained the meaning of end-to-end Encryption, and then asked corresponding questions.

* Details are available in Annexure 3.

Respondents were likely to exchange less information with Family, if encryption is removed.



Respondents were likely to exchange less information with Friends, if encryption is removed.

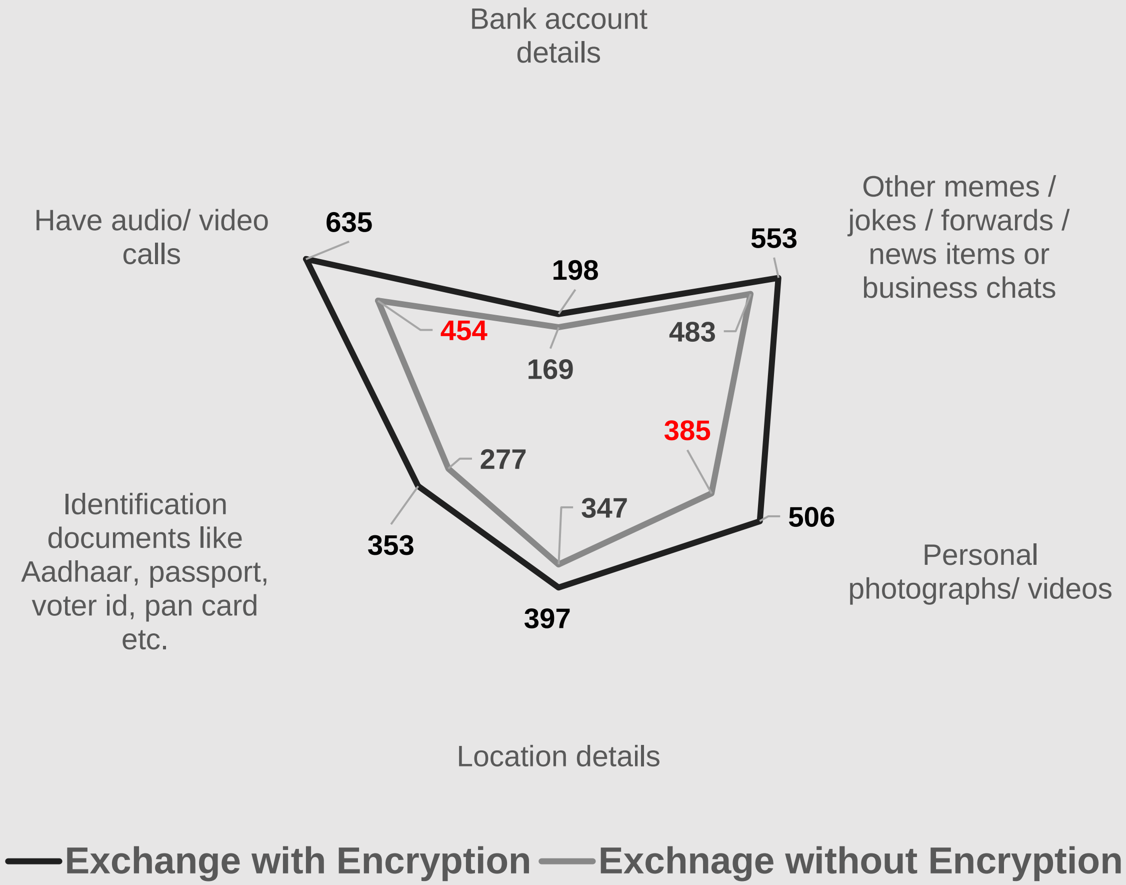


There was a greater likelihood of respondents reducing the exchange of Personal Photographs/Videos, and having Audio/Video Calls with Friends & Family on Instant Messaging Platforms, in case encryption is removed.

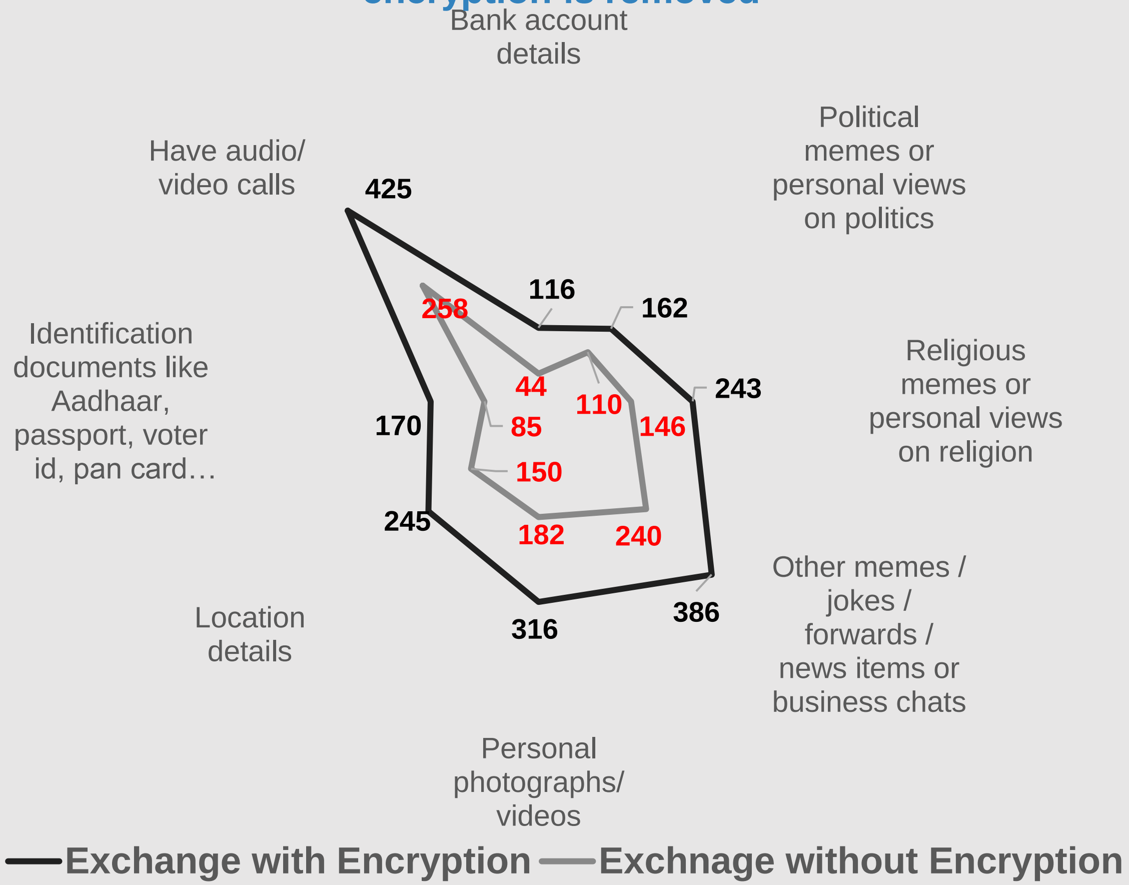
* The figures given in the above charts, depict the number of respondents exchanging different kinds of information with & without encryption with respective contacts.

* Details given in Annexure 3.

Respondents were likely to exchange less information with Office Colleagues, if encryption is removed.



Respondents were likely to exchange less information with Other contacts like neighbours, acquaintances, if encryption is removed



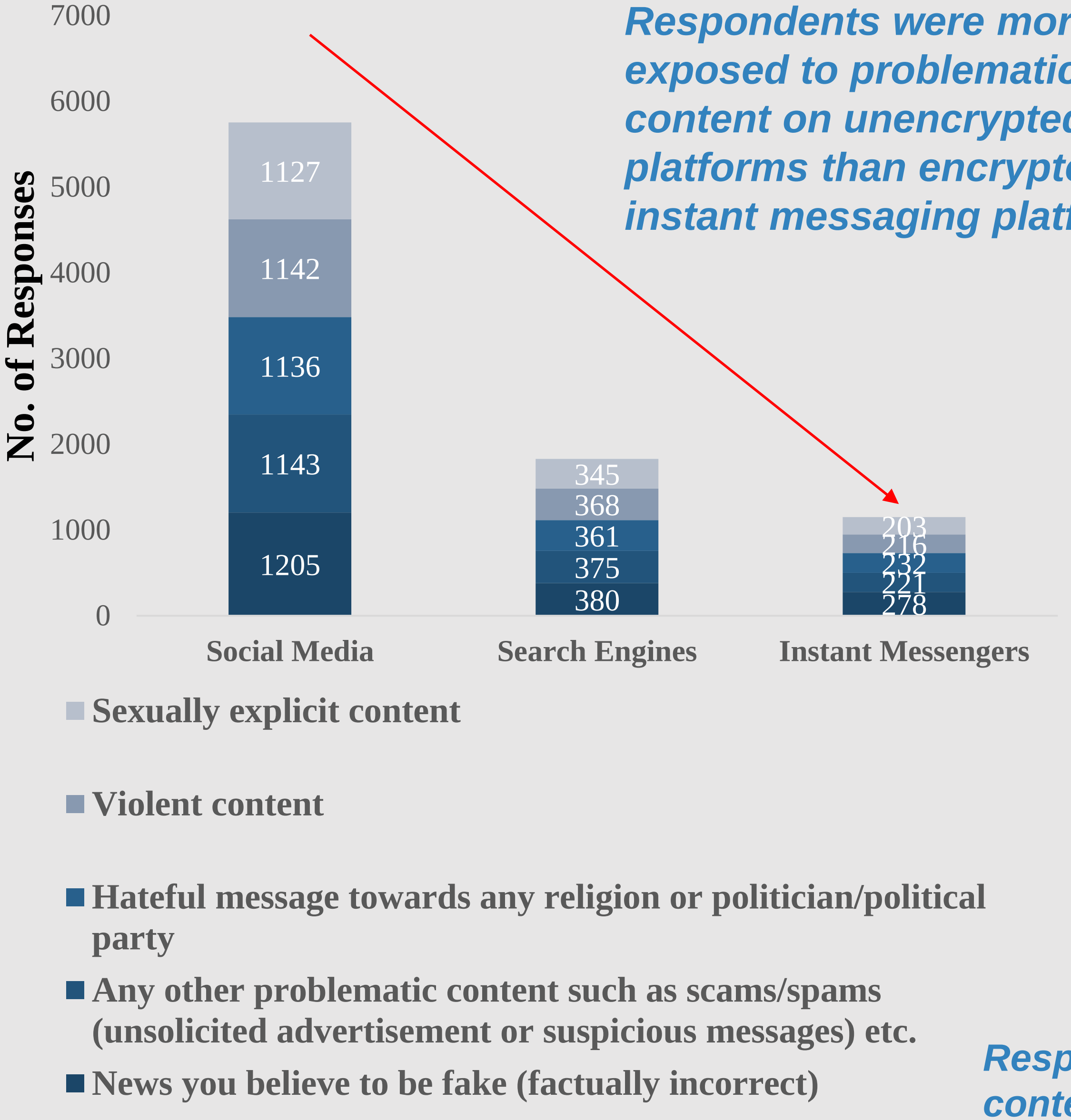
There is a greater likelihood of respondents reducing the exchange of Personal Photographs/Videos, and having Audio/Video Calls with Office Colleagues & Other Contacts on Instant Messaging Platforms, in case encryption is removed.

* The figures given in the above charts, depict the number of respondents exchanging different kinds of information with & without encryption with respective contacts.

* Details given in Annexure 3.

Consumers Exposure to Problematic Content & corresponding Actions

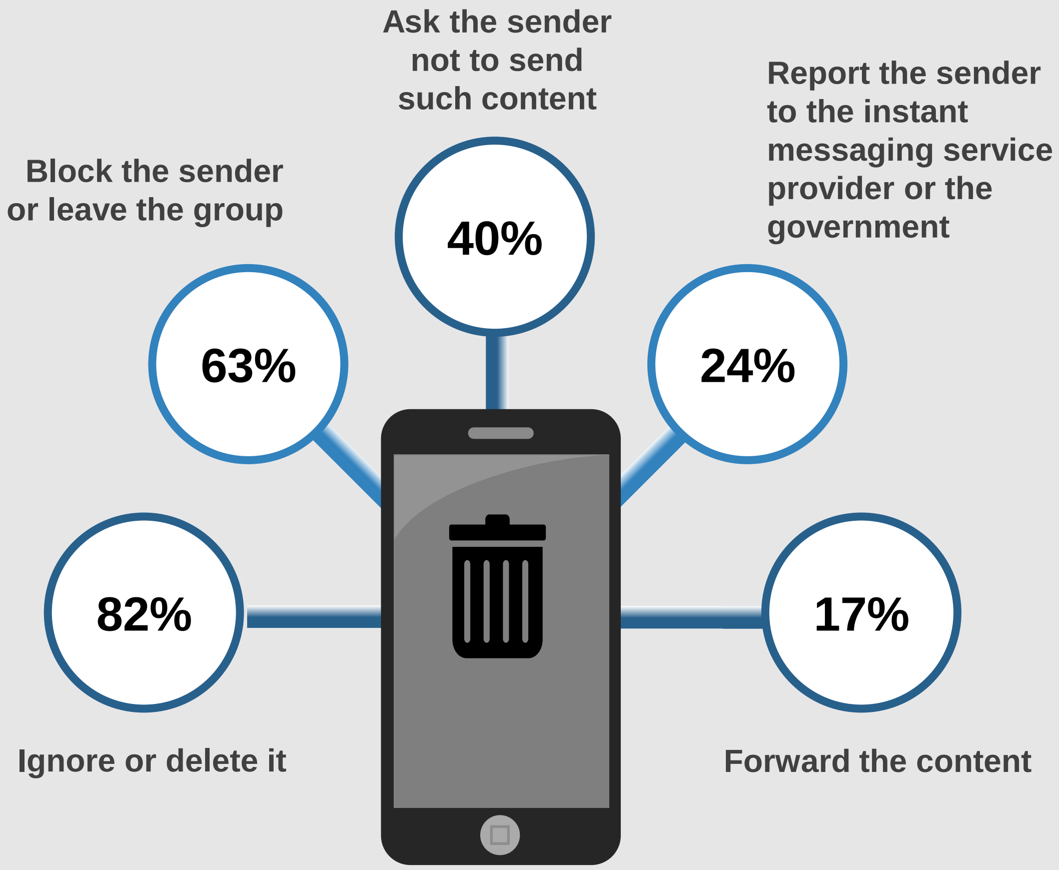
Consumers Exposure to & Action against Problematic Content



Respondents were more exposed to problematic content on unencrypted platforms than encrypted instant messaging platforms.

* Details given in Annexure 4.

* This was a multiple choice question, i.e., respondents were free to choose more than one reaction to problematic content. Accordingly, it is possible that consumers react differently to different kinds of problematic content.


Ask the sender not to send such content
40%
Block the sender or leave the group
63%
Report the sender to the instant messaging service provider or the government
24%
82%
Ignore or delete it
17%
Forward the content

Respondents claimed to have multiple different reactions to problematic content. This may perhaps indicate that they react differently to different kinds of problematic content, or content received from different contacts.

Consumers Priorities for the way forward

Importance & Willingness to Pay for E2E Encryption

How much would you be 'Willing to Pay' per month, for an assurance that your chats would not be accessed by any unintended recipients, i.e. for your chats and calls to be end-to-end encrypted?

* Respondents could only enter a value between INR 0 to INR 100.

Hypothetically, out of 100 points, how much would you attribute on the aspects mentioned below, as per your priority and preference?

* Total points given to the three options added up to 100.

₹1

Respondents claimed to be willing to pay ₹1 per day, for E2E Encryption, i.e. for ensuring the privacy of their chats.

Respondents gave almost equal importance to privacy of their chats, and the need for curbing the spread of problematic content.

Privacy & Curbing the Spread of Problematic Content Equally important for Consumers

1

42%
Instant messaging services remain free for use.

2

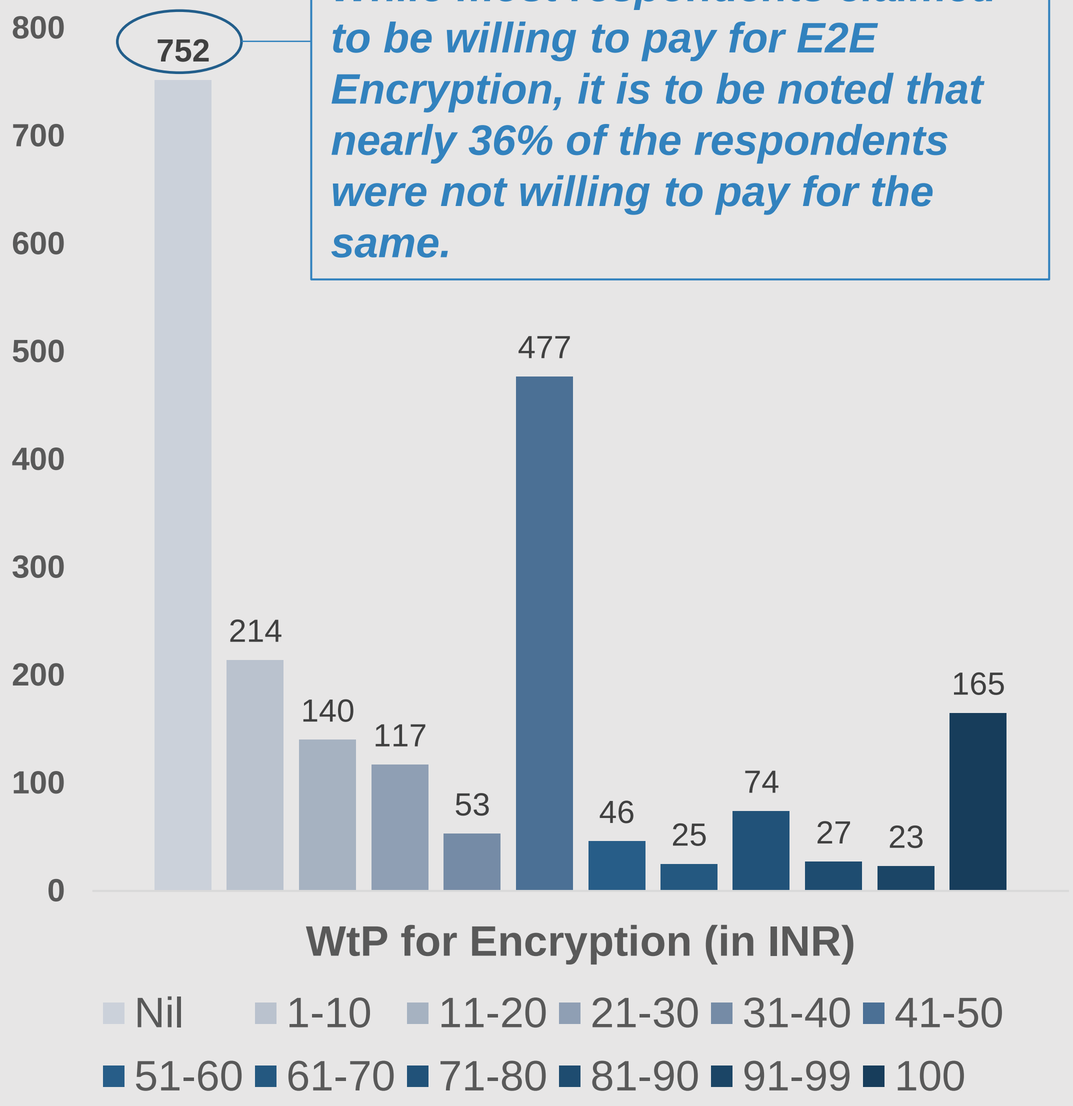
30%
Assurance that your chats are not accessed by any unintended recipients.

3

28%
Curb spread of problematic content.

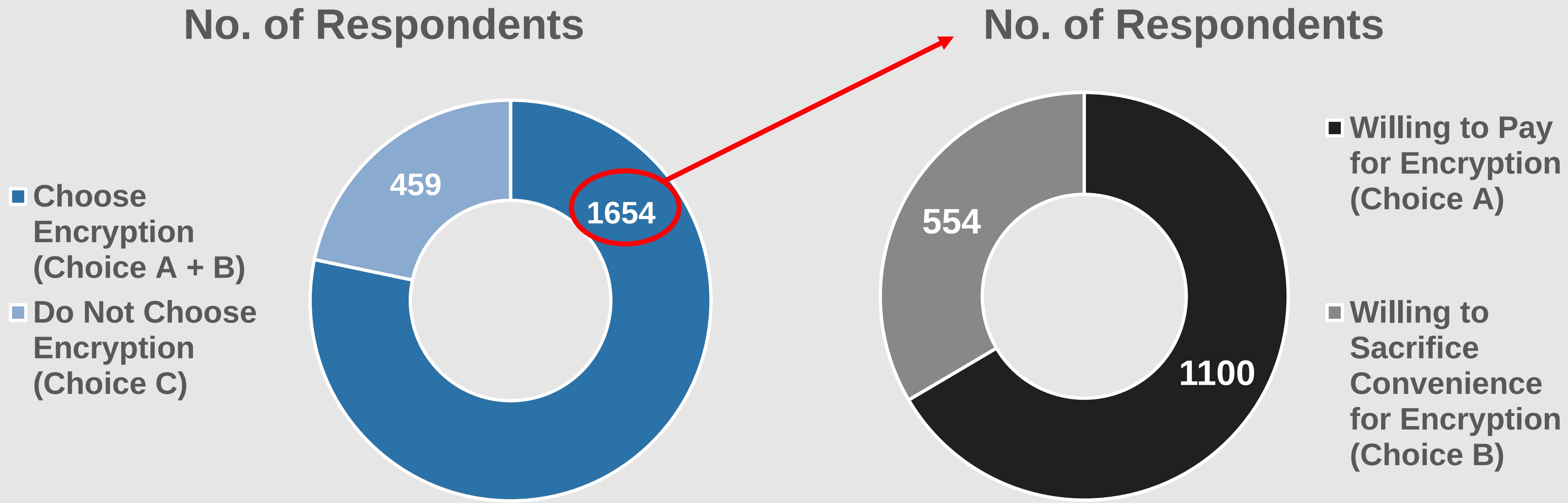
₹1

On an average, respondents claimed to be willing to pay ₹31 per month (Males: 30, Females, 32), or ₹1 per day towards E2E Encryption.



While most respondents claimed to be willing to pay for E2E Encryption, it is to be noted that nearly 36% of the respondents were not willing to pay for the same.

Consumers Priorities



Most respondents chose Options A or B, both of which included encryption. This signifies their priority towards it, given that they were willing to pay for E2E Encryption in monthly monetary terms, or through advertisements (sacrificing convenience).

Which of the below mentioned choice would you prefer to be adopted by instant messaging service providers?

Choice Experiment	Choice A	Choice B	Choice C
Encryption of your chats, i.e. an assurance that your chats are not accessed by any unintended recipients	Yes	Yes	No
Instant messaging service charging monthly subscription fee, of the amount mentioned by you above.	Yes	No	No
Advertisements being displayed on the instant messenger, thereby reducing the ease or convenience of using instant messaging services	No	Yes	No
Number of Respondents	**1100**	**554**	**459**

Recommendations for the Way Forward

Need to continue with E2E Encryption & see it as a Competitive Advantage

Given that respondents recognized the benefit of privacy on instant messaging services, and were likely to reduce exchanging different kinds of information with different contacts in case privacy is compromised; it becomes imperative to continue with E2E Encryption on instant messaging services. Also, service providers may consider E2E Encryption as a competitive advantage over Unencrypted services.

Need for Awareness Generation on E2E Encryption

Given that respondents had a desire for privacy of their chats on instant messaging services, but appeared to be confused about the role of E2E Encryption for the same, it becomes imperative to undertake awareness generation initiatives amongst consumers on the subject.

Need for In-depth Interaction with Consumers

Given that respondents claimed to be willing to pay for privacy of their chats (E2E Encryption), and were also likely to react differently to different kinds of problematic content, it becomes important to hold in-depth interactions with consumers to delve deeper on such claims/ reactions.

Select Findings from Different Respondent Profiles

Gender as a Variable

* Females (1079)

- Females are curious and value Privacy of their Chats and Profile Picture more than Men
- Females are more aware about the role of E2E Encryption, than men
- Females are wiling to pay more for E2E Encryption than men

M: 51%
F: 63%

More number of females prefer to keep their profile picture private than men

M: 56%
F: 63%

More number of females prefer not to show their read receipts to unknown contacts men

M: 37%
F: 41%

More number of females claimed to have had a conversation with their friends/family on the privacy settings of their instant messenger, than men

1 in 344 M & 1 in 180 F

More number of females were aware about the exact role of E2E Encryption, than men

M: ₹30
F: ₹32

Females claimed to be willing to pay slightly more for E2E Encryption, than men

Higher Education as a Variable

* Diploma or above (813)

- Even educated respondents were not aware about the role of E2E Encryption
- However, they recognized privacy of chats as a benefit of using Instant Messaging Services, & claimed to know how to change privacy settings, more than lower educated respondents

HE: 59% LE: 54%

More number of educated respondents recognized privacy of chats as a benefit of using Instant Messaging Services, than lower educated respondents

HE: 62% LE: 55%

More number of educated respondents claimed to know how to change the privacy settings of their instant messenger, than lower educated respondents

HE: 60% LE: 57%

Even educated respondents believed that they get personalized ads on other digital platforms, based on their chats (despite E2E Encryption), thereby showing a general lack of awareness on the subject

HE: 46% LE: 42%

More number of educated respondents claimed to have heard about Bollywood celebrities' chats being accessed by the government, which made them vary about the privacy of their chats

* HE: Higher Educated
* LE: Lower Educated

Geography as a Variable

* Urbanites (1049)

- More number of urbanites claim to know how to change privacy settings of their instant messaging service, & also speak about the same with family & friends
- Even urbanites were under the misconception that they get personalized ads on other digital platforms based on their chats
- They claimed to be willing to pay more for privacy of their chats, than respondents from non-urban areas
- Respondents from urban areas were less exposed to problematic content, especially on instant messaging platforms, than those from Tier-II cities and rural areas.

U: 65%
NU: 49%

More number of urbanites claimed to know how to change privacy settings of their instant messaging service, than non-urbanites

U: ₹31
NU: ₹27

Urbanites claimed to be willing to pay more for E2E Encryption, than respondents from peri-urban and rural areas

U: 85%
NU: 71%

More number of urbanities chose Options with E2E Encryption, in the choice experiment, than respondents from non-urban areas

U: 417
NU: 733

There were more number of counts of respondents receiving different kinds of problematic content on instant messengers, in non-urban areas, than urban areas

* U: Urban Area
* NU: Non-Urban Areas

Experience of Using Instant Messengers as a Variable

E: 61%
IE: 53%

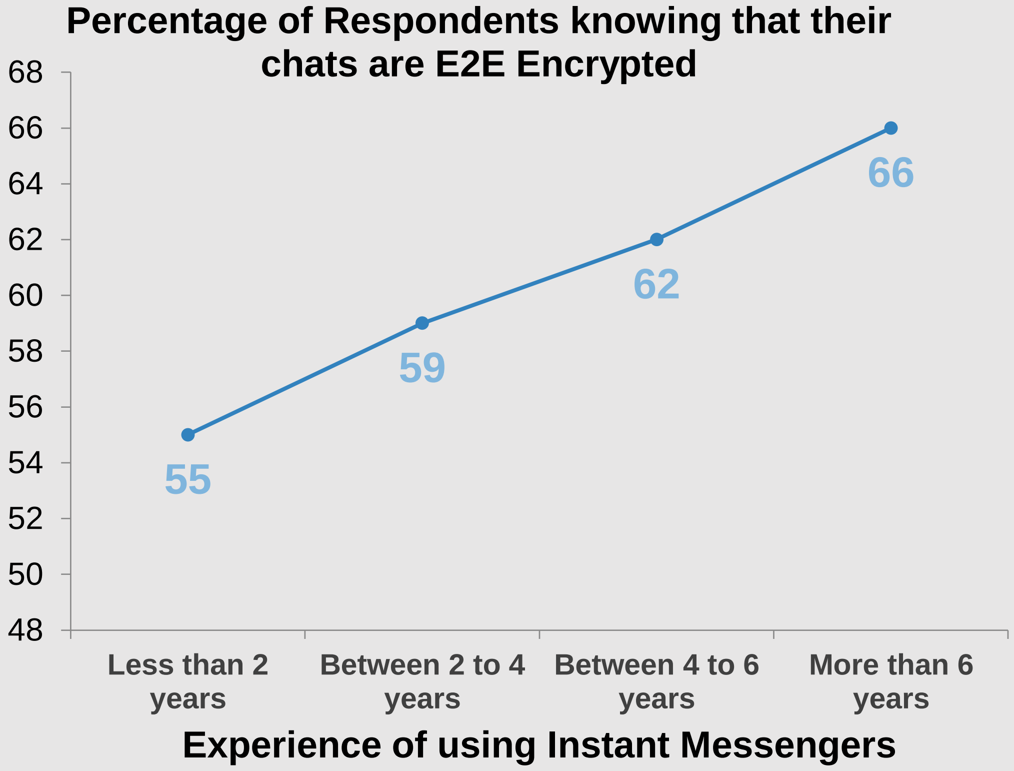
More number of experienced respondents recognized privacy of chats as a benefit of using Instant Messaging Services, than inexperienced respondents

E: 63%
IE: 52%

More number of experienced respondents claimed to know how to change the privacy settings of their instant messenger, than inexperienced respondents

E: 41%
IE: 37%

Slightly more number of experienced respondents claimed to have had a conversation with their friends/family on the privacy settings of their instant messenger, than inexperienced respondents



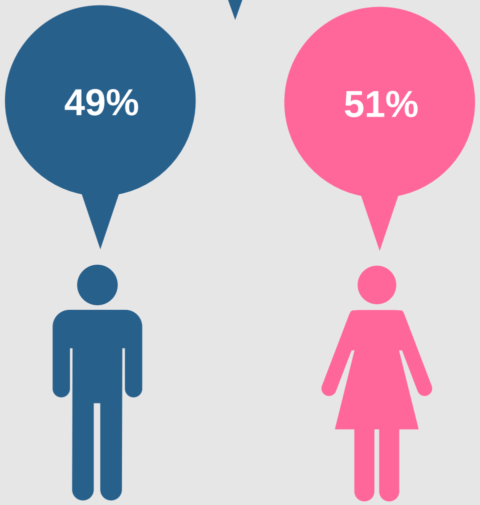
- More experienced respondents, were aware that their chats were E2E Encrypted. However, their knowledge of its role continued to be amiss

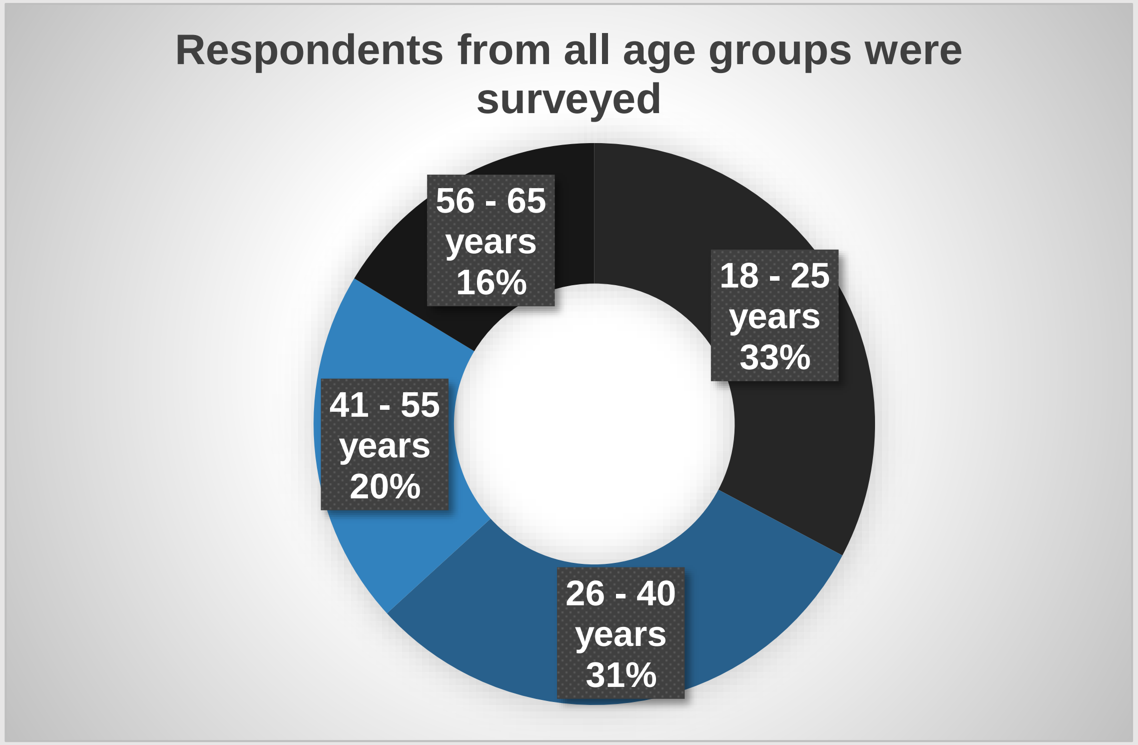
* E: Experienced respondents (over 4 years of usage)
* IE: Inexperienced respondents (less than 4 years of usage)

Annexure 1: Respondent Profile

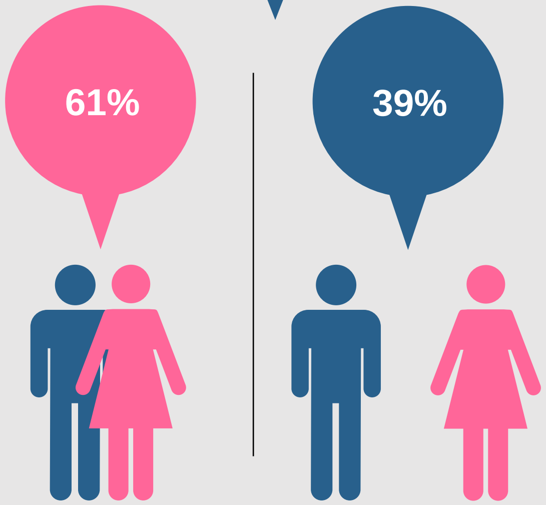
A Total of 2113 Respondents were Surveyed

Almost equal number of male-female respondents were surveyed



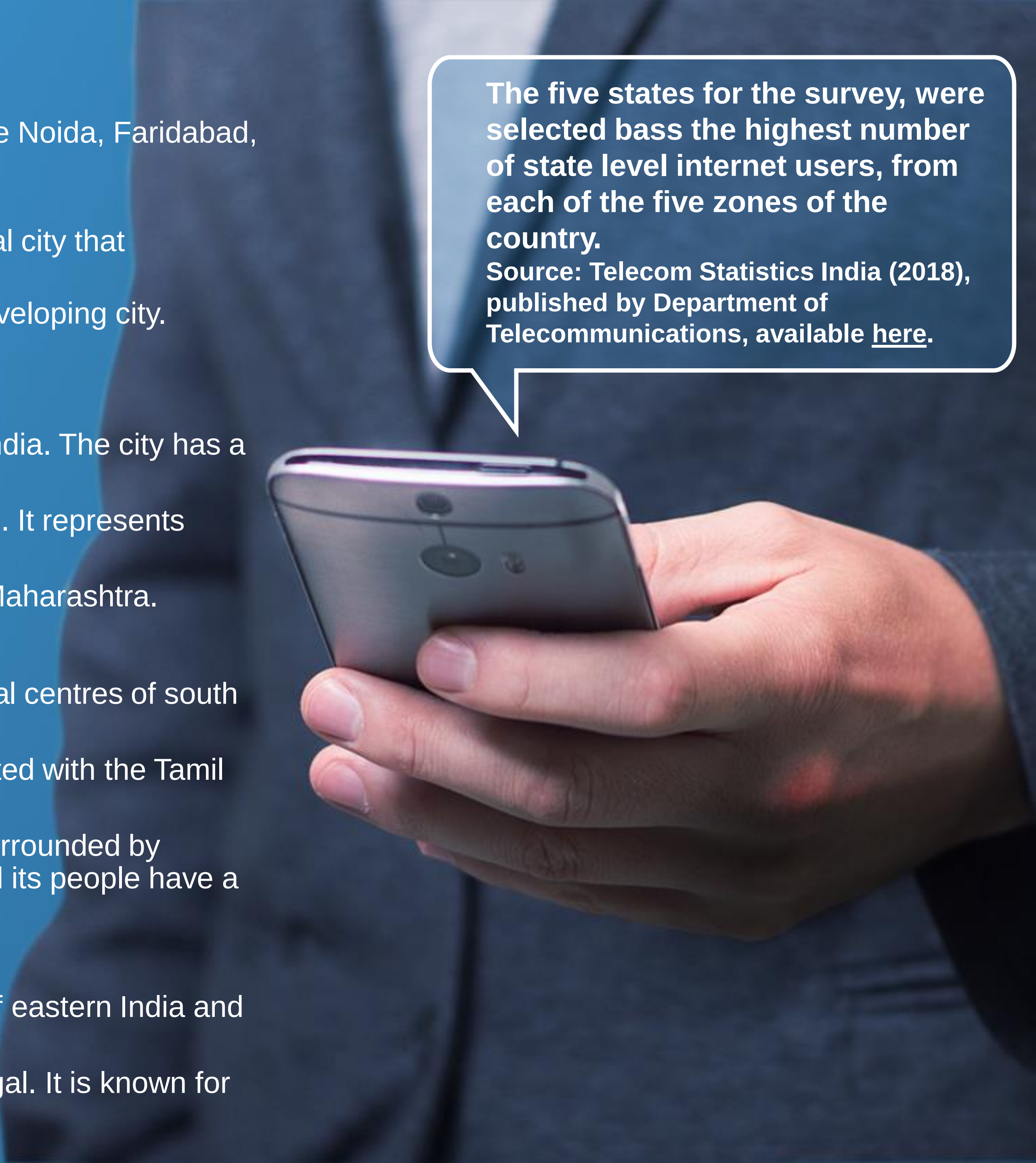

Respondents from all age groups were surveyed

Healthy mix of married & unmarried respondents was ensured



* A purposive random sampling methodology was adopted for identifying the survey respondents.
* A neutral gender ratio was maintained.
* Conscious efforts were made to ensure a healthy mix of respondents from different age groups, and martial status.

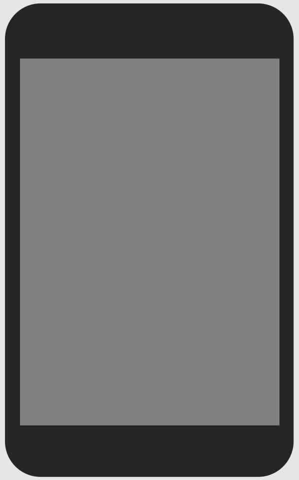
- **Delhi:**
  - **Old Delhi, West & South Delhi**: spread across all regions.
  - **NCR**: It is a rural-urban region which includes prominent cities like Noida, Faridabad, Ghaziabad, Gurgaon.
- **Uttar Pradesh:**
  - **Lucknow**: State Capital. Lucknow has always been a multicultural city that flourished as a North Indian cultural.
  - **Varanasi:** It is in the Eastern part of Uttar Pradesh, smart city, developing city.
  - **Meerut**: It is a city in the western part of Uttar Pradesh.
- **Maharashtra:**
  - **Mumbai:** It is financial, commercial and entertainment capital of India. The city has a diverse lifestyle.
  - **Pune:** It is referred as educational capital of India. Industrial areas. It represents western Maharashtra.
  - **Nagpur**: It is a major commercial of the Vidharbha region, North Maharashtra.
- **Tamil Nadu:**
  - **Chennai**: It is one of the largest cultural, economic and educational centres of south India.
  - **Madurai**: It is cultural capital of Tamil Nadu and is closely associated with the Tamil language.
  - **Coimbatore**: It is located on the banks of the Noyyal River and surrounded by the Western Ghats. It is generally considered a traditional city, and its people have a reputation for entrepreneurship.
- **West Bengal:**
  - **Kolkata**: It is the prime business, commercial, and financial hub of eastern India and the main port of communication for the North-East Indian states.
  - **Asansol & Durgapur**: Asansol is a metropolitan city in West Bengal. It is known for industrial area and has upper class population.



The five states for the survey, were selected bass the highest number of state level internet users, from each of the five zones of the country.

Source: Telecom Statistics India (2018), published by Department of Telecommunications, available here.

Mode of Contacting Respondents



706
Respondents were surveyed through telephonic interviews. This outreach method was adopted in light of the ongoing Covid-19 pandemic.

1407
Respondents were surveyed through on-ground in-person interviews.

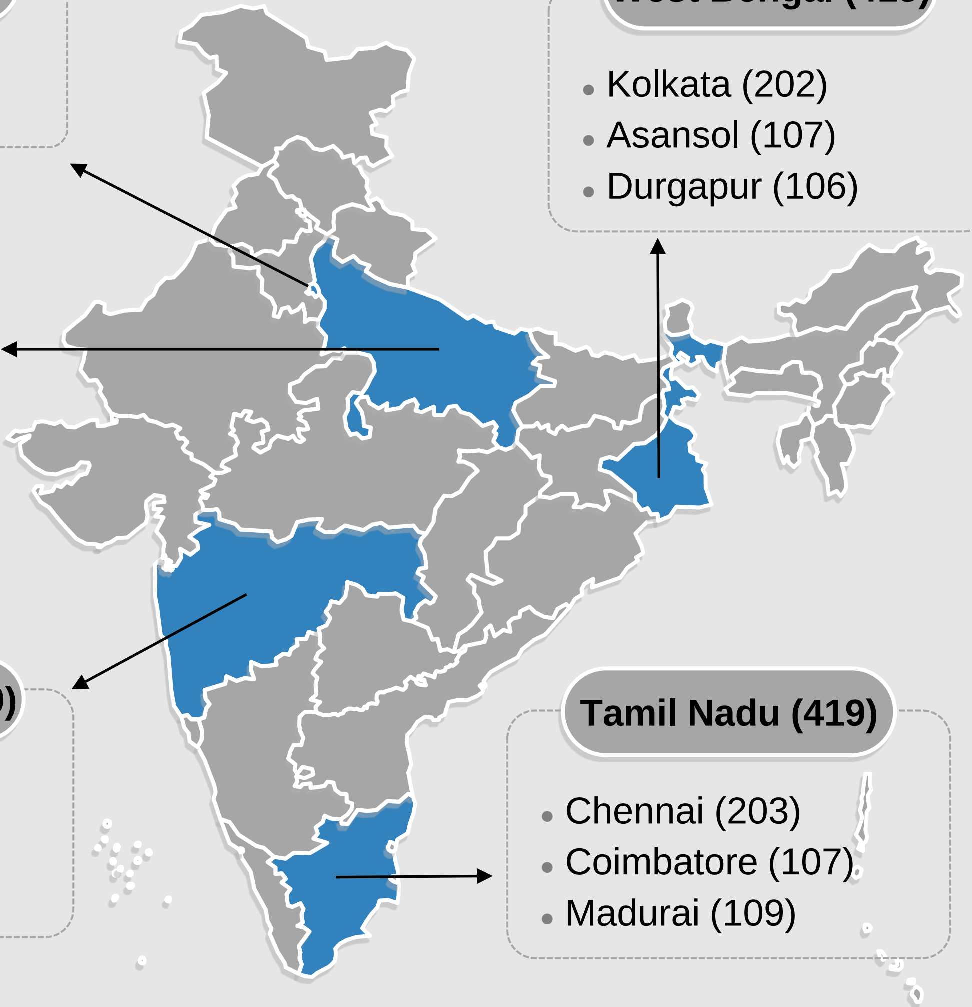
* A structured questionnaire was prepared in English, for conducting the surveys. The same was translated in regional languages as well (Hindi, Marathi, Bengali & Tamil), for convenient administration.

1049
Urban

532
Peri-Urban

532
Rural

Geographic Diversity of Respondents



Delhi NCR (416)
- Delhi (208)
- NCR (208)

West Bengal (415)
- Kolkata (202)
- Asansol (107)
- Durgapur (106)

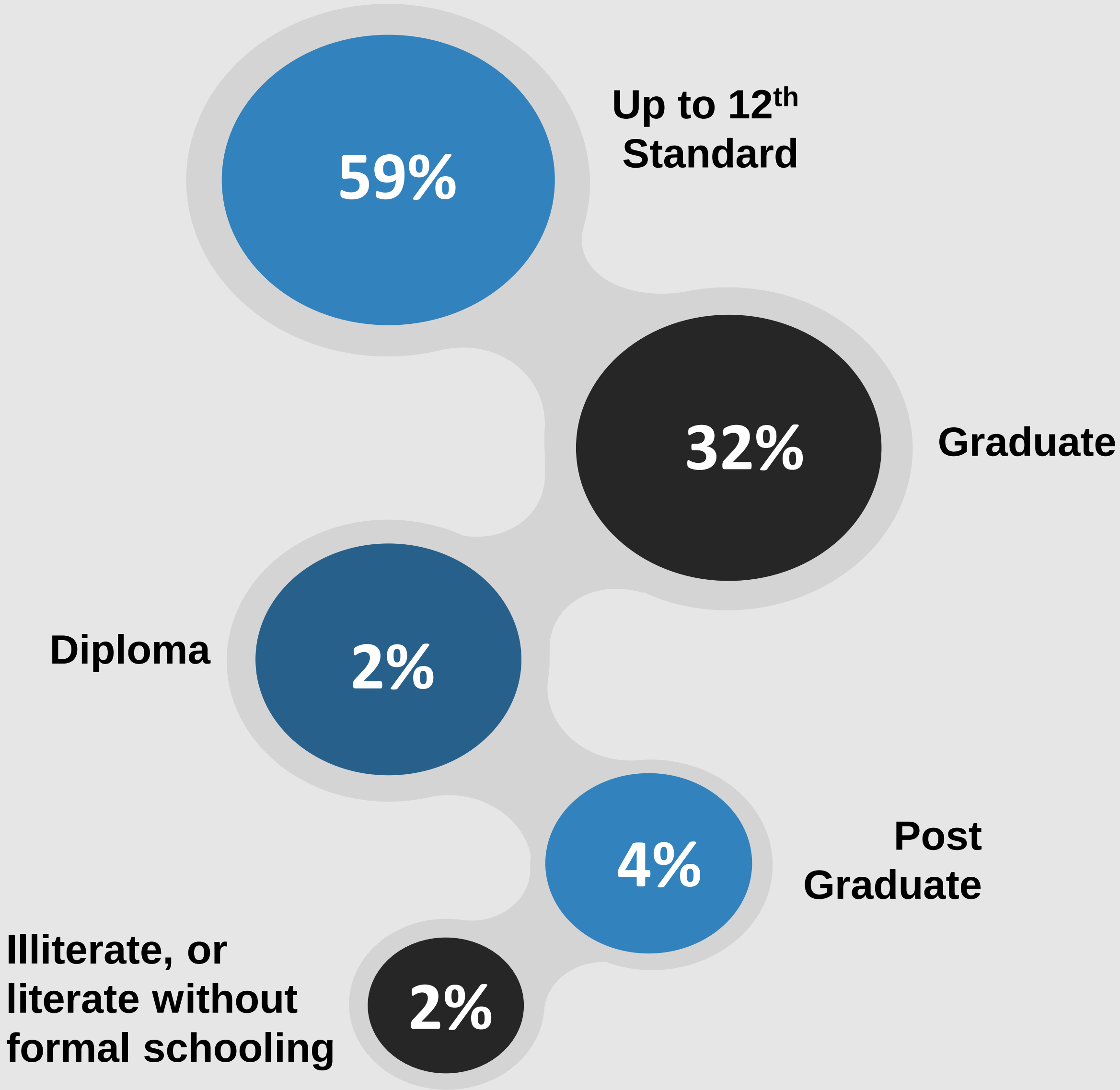
Uttar Pradesh (443)
- Lucknow (228)
- Meerut (105)
- Varanasi (110)

Maharashtra (420)
- Mumbai (208)
- Pune (104)
- Nagpur (108)

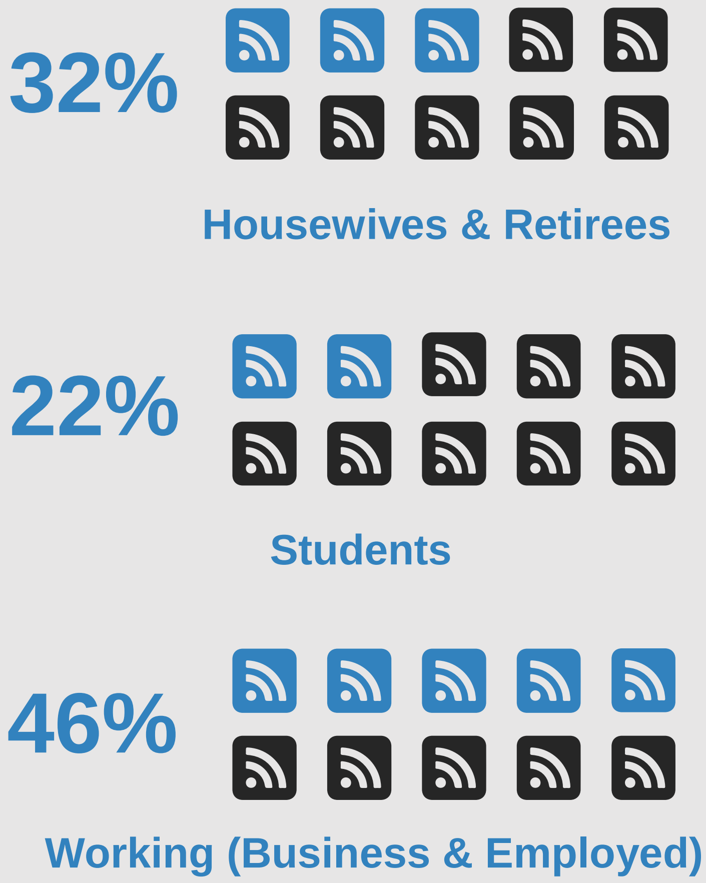
Tamil Nadu (419)
- Chennai (203)
- Coimbatore (107)
- Madurai (109)

* Apart from conducting the survey in urban and peri-urban areas, rural areas of NCR, Durgapur, Asansol, Coimbatore, Madurai, Nagpur, Pune, Meerut and Varanasi were also surveyed.

Level of Education of Respondents



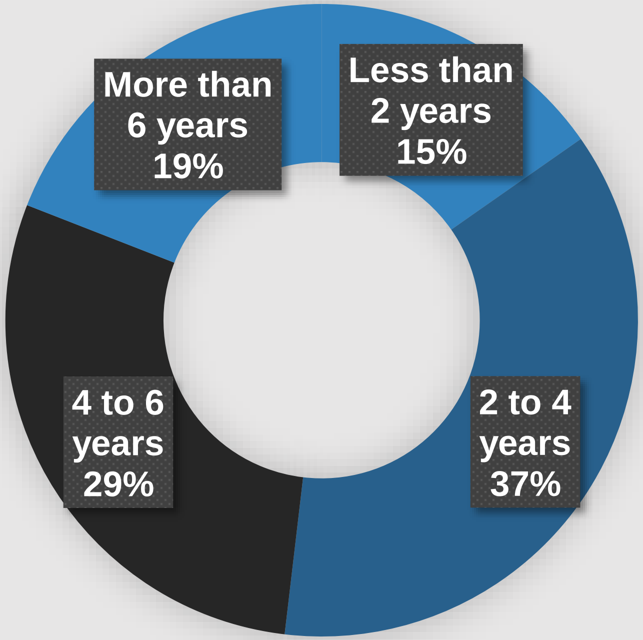
Occupation Status of Respondents



* Respondents from different educational levels and occupation were randomly selected. However, diversity in the same was also ensured.

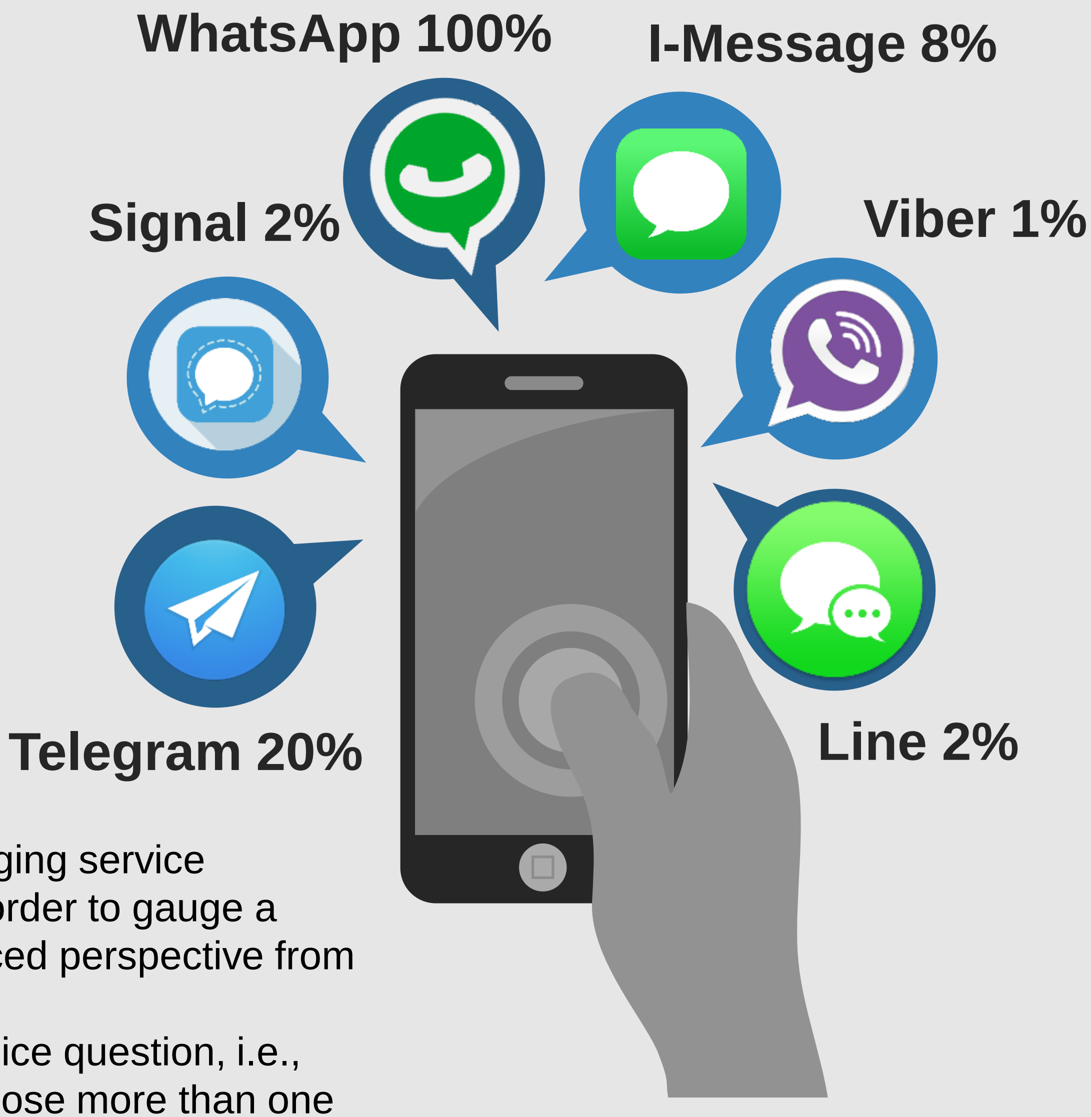
Consumers Usage of Instant Messaging Services

The survey ensured that perspectives of experienced as well as inexperienced consumers was captured.



* It is to be noted that the survey does not claim to be representative of India's diverse consumer base, *wrt* socio-economic, geographic and demographic indicators.

In line with publicly available data, WhatsApp was the most popular instant messaging service provider, amongst the respondents.



*Only users of instant messaging service providers were surveyed, in order to gauge a more informed and experienced perspective from consumers.

*Also, this was a multiple choice question, i.e., respondents were free to choose more than one instant messaging service provider.

Annexure 2: Impact of Removing Encryption on Consumers Perceived Likelihood of Unintended Recipients accessing their Chats

Given that your chats are end to end encrypted, which of the following do you think can still access your instant messaging chats, even if they are not the intended recipients?

Hypothetically, if end to end encryption is removed, which of the following do you think will be able to access your chats and calls, even if they are not the intended recipients?

* Respondents were explained the meaning of end-to-end Encryption, and then asked the second question.

* 75% = **Difference** of Sums of respondents perceived likelihood of unintended recipient accessing their chats 'with' and 'without', **multiplied** by 100, **divided** by Sum of Number of respondents 'perceived likelihood of unintended recipients accessing their chats with Encryption'.

* Respondents were asked to choose between five options, which were subsequently given scores at the time of data analysis. Very Unlikely (-2); Somewhat Likely (-1); Don't Know or Not Sure (0); Somewhat Likely (+1); and Very Likely (+2).

"When E2E encrypted, your messages, photos, videos, voice messages, documents, status updates and calls are secured from falling into the wrong hands. It ensures that only you and the person you're communicating with can read what's sent, and nobody in between, not even the service provider."

75%

75% of the respondents perceived likelihood of unintended recipients accessing their chats increased by 75%, if E2E Encryption is removed.

Annexure 3: Impact of Removing Encryption on Usage

With whom do you exchange different kinds of information (pre-defined)through instant messaging services?

Hypothetically, if end to end encryption is removed, what information and with whom would you continue to exchange through instant messaging services?

* Respondents were explained the meaning of end-to-end Encryption, and then asked the second question.

* 27% = **Difference** of Sums of number of respondents ‘not exchanging’ and ‘not willing to exchange’ different kinds of information ‘with’ and ‘without’ Encryption, **multiplied** by 100, **divided** by Sum of Number of respondents ‘not exchanging different kinds of information with Encryption’.

* 19% = **Difference** of Sums of number of respondents ‘exchanging’ and ‘willing to exchange’ different kinds of information with different contacts, ‘with’ and ‘without’ Encryption, **multiplied** by 100, **divided** by Sum of Number of respondents ‘exchanging different kinds of information with different contacts with Encryption’.

27%

Respondents were 27% more likely to completely stop exchanging different information with different contacts, if E2E Encryption is removed.

19%

Respondents were likely to reduce exchanging different information with different contacts by 19%, if E2E Encryption is removed.

Annexure 4

On which platforms have you been exposed to different kinds of problematic content?

* This was a multiple choice question, with pre-defined options.

* 13% = **Sum** of number of respondents being exposed to different kinds of problematic content on instant messengers, **multiplied** by 100, **divided** by number of respondents being exposed to different kinds of problematic content on all platforms, i.e. social media, search engines and instant messengers.

What do you usually do with the problematic content received on instant messengers?

* This was a multiple choice question, with pre-defined options.

Respondents claimed to have multiple different reactions to problematic content.
This may perhaps indicate that they react differently to different kinds of problematic content, or content received from different contacts. A deeper study on this is therefore warranted.

13% **Only 13% of respondents exposure to problematic content was on Encrypted Instant Messaging Platforms, as compared to 87% on Unencrypted platforms like social media and search engines.**

Thank You

Comments and suggestions are welcome

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We are grateful to them, for their valuable guidance and inputs throughout the study.