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Implementation gaps in the two-finger test ban in medico-legal evidence collection on rape: a qualitative study in three districts of Bangladesh

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Abstract

Background The use of the two-finger test (TFT) for collecting medico-legal evidence on rape has been recognised as a public health concern. It has been banned in many countries around the world. However, the scant evidence available on the implementation of this ban suggests its poor implementation. Continued use of TFT directly threatens the achievement of SDG 5 by compromising the quality of healthcare for rape survivors, negatively impacting their psychological health, bodily integrity, and chances of reporting and convicting the perpetrator(s). The current study assesses the implementation of the ban in Bangladesh, identifies gaps and suggests ways to improve the implementation of the ban.

Methods The qualitative study was conducted between September 2023 and January 2024 in three districts of Bangladesh: Dhaka, Dinajpur and Rangpur. Eight healthcare facilities at the primary, secondary and tertiary levels were included. We conducted 35 key informant interviews with stakeholders from the health, legal and NGO sectors; two focus group discussions with NGO staff; and five in-depth interviews with rape survivors or their parents. Data were coded via Atlas.ti 7 and analysed using the grounded theory.

Results The findings revealed widespread practice of TFT by healthcare providers outside of capital. Healthcare providers' conviction regarding the usefulness of TFT in proving rape combined with judicial acceptance of TFT-based findings were contributing factors that hindered implementation of the ban in Dinajpur and Rangpur. The implementation of the ban in Dhaka was linked to awareness of the healthcare providers about the ban, their knowledge of the ineffectiveness of TFT in proving rape and rejection of the TFT-based findings at the court.

Conclusion Awareness must be promoted about the ban and ineffectiveness of TFT in proving rape not only in the health sector, but also in the legal sector. In addition, measures must be taken to ensure compliance to the ban. The findings have implications for programmes and policies not only in Bangladesh but also in other low- and middle-income countries grappling with TFT ban implementation to ensure dignified healthcare to rape survivors.

Keywords Rape, Health response, Two-finger test, Ban implementation, SDG 5, Bangladesh

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Introduction

Two-finger test: a type of gender-based violence and a grave violation of justice to rape survivors

Two-finger test (TFT) is performed by medical practitioners by inserting two fingers into the vagina of the reported rape survivors with the conviction that the test can produce evidence on rape [1] through assessment of the size, penetrability and injury of the vaginal opening [2]. Use of TFT in medico-legal examination of rape case has been documented in many countries around the world [3]. Evidence suggests that TFT dates back to the 18th century when it was used in rape trials [1]. The test has been reported as a colonial relic widely practiced in the British jurisdiction to determine “true virgin” or “false virgin” in rape cases [1]. The practice has been carried forward into the 21st Century to be a part of medico-legal evidence collection process [4].

The medical validity of TFT has been discredited [5]. According to the medical community, laxity of the vagina, measured through TFT, is not a clinical indicator of whether or not rape has occurred [5]. Rape has been defined by the WHO as “non-consensual penetration – even if slight – of the vulva, mouth or anus, using a penis, other body part or an object” [6]. If the WHO definition of rape is considered, it becomes clear that such a test is not applicable for proving the whole gamut of rape. While vaginal penetration and genital injuries may present evidence of some kind of physically forced rape, these findings do not provide evidence on any other type of rape be it coerced or performed via penetration of other parts of the body (e.g., mouth, anus). Therefore, TFT is irrelevant in proving rape [3, 7–12].

TFT is an invasive procedure that violates fundamental human rights by compromising women’s bodily autonomy and integrity [13]. The procedure is retraumatising often worsens survivors’ mental health and well-being, leading to long-term conditions such as anxiety, depression, and PTSD, or even suicide [3]. Moreover, beyond immediate physical, psychological and ethical violations, TFT has cascading adverse social implications for the survivors such as stigma, becoming an outcaste, having compromised life options and opportunities [3].

TFT has negative implications for reporting of rape as well. Driven by structural and systematic barriers such as social stigma, expensive and time-consuming legal procedures and retaliation to list a few, rape remains a gravely underreported crime in Bangladesh and elsewhere. Only 7% of the ever-married women in Bangladesh pursue any legal action for physical or sexual intimate partner violence [14]. In 2024, 749 rape of females were reported in daily newspapers of Bangladesh while in case of 107 no police case was filed [15]. TFT contributes to this underreporting and low recourse seeking by introducing the

fear of going through a retraumatising experience [16, 17].

TFT has also far reaching adverse implications for legal outcomes on rape cases. Conclusions drawn based on the results of TFT often construe absence of genital injury as consent in sex. Although vaginal laxity has nothing to do with rape it has been commonly used to dismiss rape cases or to acquit the accused raising questions regarding questionable character of the survivor. Consequently, use of TFT results in legal proceedings often result into low conviction in rape cases [18]. All of these lead to denial of justice to the survivor and subject her to boundless suffering.

Thus, TFT perpetuates gender-based violence and intersects with health inequity, and unequal access to justice. The test disproportionately affects women and girls and marginalises them further. TFT is in clear violation of the principle of equal access to ethical and safe healthcare as well as justice. TFT undermines progress toward multiple Sustainable Development Goals (SDGs). TFT directly threatens achievement of elimination of all forms of violence against women (SDG 5.2) and harmful practices (SDG 5.3) by subjecting rape survivors to secondary rape. Practicing an unethical, invasive and degrading procedure during healthcare provided to rape survivors, TFT compromises universal access to quality, safe and rights-based sexual and reproductive healthcare (SDG 3.7). By discrediting survivors’ testimonies resulting in unfair and inequitable legal outcomes TFT denies equal access to justice (SDG 16.3) to rape survivors.

Over the last few decades, TFT has been banned in many countries. Evidence suggest that in low- and middle-income countries implementing policies (e.g., health policies), is often difficult due to organisational structure and understanding that inform implementation [19, 20]. Social and cultural factors are often in conflict with an intended policy causing gaps in implementation [21]. Also, when policies are first developed or advocated by non-governmental organisations or social activism and later scaled up by the government, like the TFT ban, implementation becomes tricky [22].

Moreover, in case of health policy implementation lack of inter-sectoral cohesive response delays or prevents effective implementation [23]. Scholars rightly point out that for effective policy implementation, especially in the health sector, information dissemination and consensus-building among frontline health providers are imperative [24].

These are all very pertinent to implementation of the TFT ban. However, even globally, there is limited attempt to examine the level of implementation of TFT ban. The only evidence from India suggests that implementation of the ban was ineffective and consequently the health sector response to rape was poor [25]. TFT encompasses

as well legal, social and human rights aspects and their intersections [25]. Unfortunately, literature on how the ban influences practices in the other sectors is scarce.

The ban on two-finger test in Bangladesh

In 2018, the High Court of Bangladesh banned TFT in medico-legal evidence collection of rape as a result of a writ petition filed in 2013 to stop TFT in the examination of rape cases. In light of the hearing process of the writ petition, the High Court directed the relevant ministry of the government to develop a standardised national protocol on health responses to the survivors of gender-based and sexual violence. Consequently, the Ministry of Health and Family Welfare, Government of Bangladesh (henceforth “the Ministry”), developed a national protocol titled “Health Sector Response to Gender Based Violence Protocol for Health Care Providers” (henceforth “the Protocol”) in 2017 [26]. The Protocol aims to ensure a comprehensive, multisectoral response to GBV survivors and to set standards for healthcare providers to provide medical care along with the forensic evidence gathering process.

Since 2018, the ministry has rolled out a training program on the Protocol (henceforth “Training”) for healthcare providers working in government hospitals. In 2019, the Ministry also distributed a circular with specific guidelines regarding service provision in the health sector to survivors of gender-based violence (henceforth referred to as “the Circular”) [26]. Both the Protocol and the Circular provided information on the TFT ban.

Despite the ban and subsequent measures taken by the government for its implementation sporadic reports suggest that TFT is still in use both in the health and legal sectors [16]. There is, however, no study on the implementation status of this ban in Bangladesh. This study attempts to address this evidence gap by exploring the status of the implementation of the TFT ban, identifying factors driving the implementation and suggesting ways to improve its implementation.

Methods

Study design

The study employed a qualitative design and was exploratory in nature. Data were collected through 35 key informant interviews (KIIs) with health, legal and NGO stakeholders; two focus group discussions (FGDs) with NGO staff; and five in-depth interviews (IDIs) with survivors of rape or their parents.

Study site

The study was conducted in three districts of Bangladesh: Dhaka, Dinajpur, and Rangpur. Dhaka, the capital of Bangladesh, was selected to explore the implementation of the ban and its challenges at the Centre. In the periphery, care was taken to select two socio-demographically comparable districts, one of which received the Training on the Protocol (i.e., Rangpur) and the other that did not receive (i.e., Dinajpur) the Training on the Protocol. Table 1 presents the selected health facilities from three districts.

In total, eight health facilities were selected across three tiers (primary, secondary, and tertiary) from these districts for inclusion in the study. Dhaka included two tertiary facilities. Dinajpur included one tertiary, one secondary, and one primary facility. Rangpur, lacking a secondary-level facility, included one tertiary facility and two primary facilities. The types of facilities were selected on the basis of the Protocol, which designates specific facilities to provide medico-legal healthcare services to rape survivors.

Sample size

Purposive sampling was used to select study participants. The study participants were selected from the health, legal and NGO sectors using the Protocol as the guideline which identified these three sectors as relevant stakeholders. Table 2 presents the distribution of sample sizes from these three sectors across the three selected study sites.

Rape examiners from Medical College Hospitals, District Hospital, and Upazila Health Complexes (UHCs) were selected ($n=12$) as key informants. Medical lab assistants (MLAs) and nurses, who assist rape examiners

Table 1 Study sites and different tiers of public health institutions included in the study

Study Site	Level of Health System	Health Facilities
Dhaka Metropolitan City	Tertiary	Dhaka Medical College Hospital (DMCH)
	Tertiary	Shaheed Suhrawardy Medical College Hospital (ShSMCH)
Dinajpur	Tertiary	M Abdur Rahim Medical College and Hospital (MARMCH)
	Secondary	Dinajpur 250 Bed General Hospital
	Primary	Fulbari Upazila Health Complex (Fulbari UHC)
Rangpur	Tertiary	Rangpur Medical College Hospital (RpMCH)
	Primary	Pirganj Upazila Health Complex (Pirganj UHC)
	Primary	Gangachara Upazila Health Complex (Gangachara UHC)

Table 2 Sample size by data collection methods used and site ($n=42$)

Method	Participant		Site			Total participants
			Dhaka	Dinajpur	Rangpur	
KII	Health ($n=25$)	Rape examiners	2	5	5	42
		Rape examination support staff	4	3	2	
		Forensic Department Prof./Asst Prof.	2	1	0	
		Health Ministry staff	1	0	0	
	Legal ($n=7$)	Lawyers	1	2	1	
		Police	1	1	1	
		NGO staff	1	1	1	
FGD*	NGO staff ($n=2$)		0	1	1	
IDI	Rape survivors/family members ($n=5$)		1	2	2	
Site total			13	16	13	

*FGDs consisted of 8–10 participants

($n=9$), Professors and Assistant Professors from Forensic Departments of medical colleges ($n=3$) were also included as key informants. We have interviewed one staff member from the MoHFW as a policy-level key informant. Criteria for selecting the health providers:

- Designated to work as rape examiners for more than six years and currently working at the studied public health facilities.

From the legal sector, four lawyers and three police officers who dealt with rape cases were selected as key informants. Selection criteria for legal sector stakeholders:

- Practicing lawyer at the courts in the study sites with experience of dealing with rape cases for more than six years.

Three NGO staff supporting rape survivors were included as key informants. Additionally, we conducted two FGDs with NGO staff. Criteria for selecting NGO staff:

- Working in NGOs and providing support to rape survivors as part of the job for more than six years.

We interviewed one rape survivor who was an adult. Four of the five survivors included in the study were minors aged 9–15 years. Therefore, we conducted in-depth interviews with their parents. The interviews took place approximately 2–3 years after the rape was perpetrated. In two out of five cases, no charge sheet (CS) was filed after the initial investigation, and the accused was freed on bail. In three cases, court hearings were ongoing. Selection criteria for rape survivors/their family members:

- Rape occurred after declaration of the TFT ban in 2018 and police case was filed. The latter was added

as medico-legal examination becomes a requirement only after filing a police case.

Data collection tools

The KII and FGD guides included questions on the knowledge of relevant stakeholders regarding the TFT ban and the futility of TFT, attitudes and practices regarding TFT, and challenges in the implementation of the ban. IDI guides included questions on survivors' experience of medico-legal examination and legal proceedings at court. The guides were developed in English and then translated into Bengali and piloted during training of the data collectors. The guides were finalised on the basis of feedback from the pilot.

Data collection

Data were collected between October 2023 and January 2024. Data were collected by two female and two male qualitative data collectors and supervised by one female co-principle investigator (NA) of the study. All had Master's Degree in social science and extensive experience in qualitative data collection training. Data collectors underwent 5 days of training on violence against women, sexual assault, rape, medico-legal care to rape survivors, international and national protocols on medico-legal services, the invalidity of TFT, the TFT ban, qualitative research methods, research ethics, and study tools. Study participants were not previously known to any of the data collectors. The interviews were gender matched and conducted in places convenient for the participants. Careful consideration was given to conducting interviews with the rape survivors and their family members. Informed written consent was obtained from all participants. Upon receiving consent, interviews were audio-recorded. KIIs and IDIs took 40 to 80 min, and FGDs took 60 to 90 min to complete. The study protocol was approved by icddr, b's Institutional Review Board (PR-23095) and Ethical Review Committee of Dhaka Medical College (ERC-DMC/ECC/2023/294). Gender analysis was conducted

during the study design using icddr, b's gender analysis framework.

Data analysis and interpretation

The recorded data were transcribed verbatim in Bengali. Transcripts were anonymised by removing any information that could identify the participant. The accuracy and completeness of the transcripts were examined by listening to all of the audio-files of the IDIs, KIIs, and FGDs. Researchers always went back to the audio files if confusion regarding accuracy arised.

We used Atlas.ti 7 for qualitative data analysis. Two members of the research team coded the transcripts. Once coding was completed the data were retrieved by codes for further analyses by themes. Repeated discussion took place among the researchers allowing enough scope for examining the data critically, enhancing the rigour of analysis, and reflecting upon the findings.

Grounded Theory (GT) is well suited (1) to identify cross-cutting themes and normative constructs related to our topic of interest, and (2) to link these themes into an explanatory model to understand the context of non-compliance to the ban.

We followed the following steps for GT analysis:

1) *Codebook.*

An initial set of provisional codes were identified and developed prior to fieldwork as introductory concepts informed by the study objectives, policies (the ban and the Protocol), and relevant literature on medico-legal responses to rape. These codes were not fixed rather, they were used to introduce data collectors to the relevant concepts and provided an analytic starting point. The code list was open to modification. During analysis, we systematically read memo and discussed themes raised in the KII, FGDs and IDI transcripts. Core themes were developed into a codebook, listing each theme and how to label data for each theme. The codebook included inductive themes emerging from the data and deductive themes developed a priori from theoretical domains in the interview guides.

2) *Test inter-coder agreement, revise codebook.*

In order to resolve inter-coder differences 5% of KII, half of the FGDs and one-fifth of the IDIs were first coded by the coders independently. Then, the coding was compared and disagreements resolved upon thorough discussion.

3) *Code data.*

Using themes from the codebook, we coded the full dataset using textual data analytic software that permits cross-classification and retrieval of transcripts and segments of text by theme.

4) *Conduct descriptive and comparative analysis.*

Descriptive analysis was conducted to identify the types, contexts, and nuances in implementation of the ban and its drivers. We compared findings across sites/sector/method of data collection to reveal patterns in issues mentioned repeatedly across interviews, and by certain groups, suggesting normative perceptions or behavior.

5) *Develop conceptual framework of findings.*

Findings from the descriptive and comparative analysis were developed into a conceptual framework that explains how knowledge, and attitudes shape practices.

Results

Overview of the status of TFT ban implementation at the study sites

Table 3 shows the status of the knowledge, attitudes and practices (KAP) of stakeholders from different sectors and at different sites.

Table 3 clearly shows that the majority of the stakeholders had no knowledge of the ban (22/34) and endorsed TFT in rape examinations (16/27). One-third of the rape examiners reported performing TFTs (4/12). According to most of the KIs from the legal sector, TFT results were used during court proceedings (3/4).

The majority of the healthcare providers who were involved with rape examination lacked knowledge regarding the ban on TFT (16/24). Awareness of the ban was also low in the legal sector, with five out of seven stakeholders lacking knowledge of the ban. KIIs (2/3) and FGDs with NGO staff show better awareness of the ban than do KIIs from the health and legal sectors. NGO staff in Rangpur showed better knowledge about the ban than NGO staff in Dinajpur during FGDs.

The majority of the healthcare providers (11/17) and legal sector stakeholders (5/7) believed that TFT is essential in proving rape, whereas most NGO staff who participated in the study rejected the relevance of TFT in proving rape.

Out of a total of 12 healthcare providers who were assigned rape examiners interviewed across the study sites, six did not conduct any rape examinations. Among the six who performed rape examinations, the majority (4/6) still used TFT. The majority of the lawyers (3/4) (all from Rangpur and Dinajpur) reported that TFT results were still used in their courts.

Almost all of the healthcare providers from the periphery were unaware of the ban, whereas in Dhaka, the majority of the providers seemed to be aware (1/13 in Rangpur and 1/10 in Dinajpur vs. 10/11 in Dhaka). Endorsement of TFT was significantly more pronounced at the periphery than at the center (8/10 in Rangpur and 6/7 in Dinajpur vs. 2/10 in Dhaka). In Dhaka, both

Table 3 Knowledge, attitudes and practices of the stakeholders by study site from Kils

Dimension	Stakeholder	Dhaka	Rangpur	Dinajpur	Total by stakeholder
Knowledge	Health sector	(7/8)	(1/9)	(0/7)	8/24
	Legal sector	(2/2)	(0/3)	(0/2)	2/7
	NGO sector	(1/1)	(0/1)	(1/1)	2/3
Knew about ban by site		10/11	1/13	1/10	Total=12/34
Attitude	Health sector	(2/7)	(5/6)	(4/4)	11/17
	Legal sector	(0/2)	(3/3)	(2/2)	5/7
	NGO sector	(0/1)	(0/1)	(0/1)	0/3
Endorsed TFT by site		2/10	8/10	6/7	Total= 16/27
Practiced TFT**	Rape examiners	(0/2)	(2/5)	(2/5)	4/12
	Legal	(0/1)	(2/2)	(1/1)	3/4
	NGO	Not applicable	Not applicable	Not applicable	Not applicable

Legends: Knowledge dimension: Green figure = Had knowledge, Blue figure = No knowledge; Attitude dimension: Green figure= Did not endorse TFT, Red figure= Endorsed TFT; Practice dimension: Green figure = Rape examiners did not perform TFT/ lawyers reported that the court did not use TFT results, Red figure = Rape examiners performed TFT/ lawyers reported that the court used TFT results, Purple figure = Rape examiners did not conduct any medico-legal examinations

* Endorsement of/supporting TFT is the denominator here since conviction of TFT’s relevance or irrelevance guided the practice of performing TFT. Not all of the participants had an opinion; thus, endorsement/non-endorsement towards TFT was calculated among those who expressed an opinion

** Health sector practices were recorded among rape examiners. For the legal sector, lawyers’ reports of legal practices in the courts were recorded

rape examiners interviewed had ceased using TFT, and the survivor interviewed from Dhaka also reported not undergoing the test. TFT results were no longer used in court in Dhaka reported by the lawyers. Data from the NGO staff from Dhaka also suggest that use of TFT based findings stopped in Dhaka court.

The situation in the periphery was markedly different from that in the capital. In Rangpur, two out of five rape examiners performed TFTs. In line with this, one mother of the survivors interviewed in Rangpur reported that her daughter was subjected to the test. In Dinajpur, out of five interviewed, two conducted TFTs in rape cases. In Dinajpur, interviewed mothers were unaware of whether TFT was performed on their daughters. Courts in both districts still accepted and even demanded TFT results during the hearing of rape cases. NGO staff who participated in KIIs and majority of the FGD participants from Rangpur and Dinajpur districts were not aware of use of TFT during rape examination.

The training on the health sector response to gender-based violence was received by two rape examiners—one in Rangpur at primary level hospital and one in Dinajpur at a secondary level hospital. Both were males and did not conduct rape examination to date as they do not have examination kits including the medico-legal examination form in the facility. Unfortunately, none of them were aware of the ban and endorsed TFT in proving rape. The trained rape examiner from Dinajpur reported its use by the female rape examiners in the facility.

The KII with the health ministry staff revealed some key administrative loopholes in implementation of the ban. First, the forensic department staff from the medical colleges, the only healthcare providers conducting medico-legal examination of rape and issuing the certificate used in court proceedings, were not included in the training on the Protocol. Second, the training could not always include sufficient number of participants from the primary and secondary level facilities due to resource constraint.

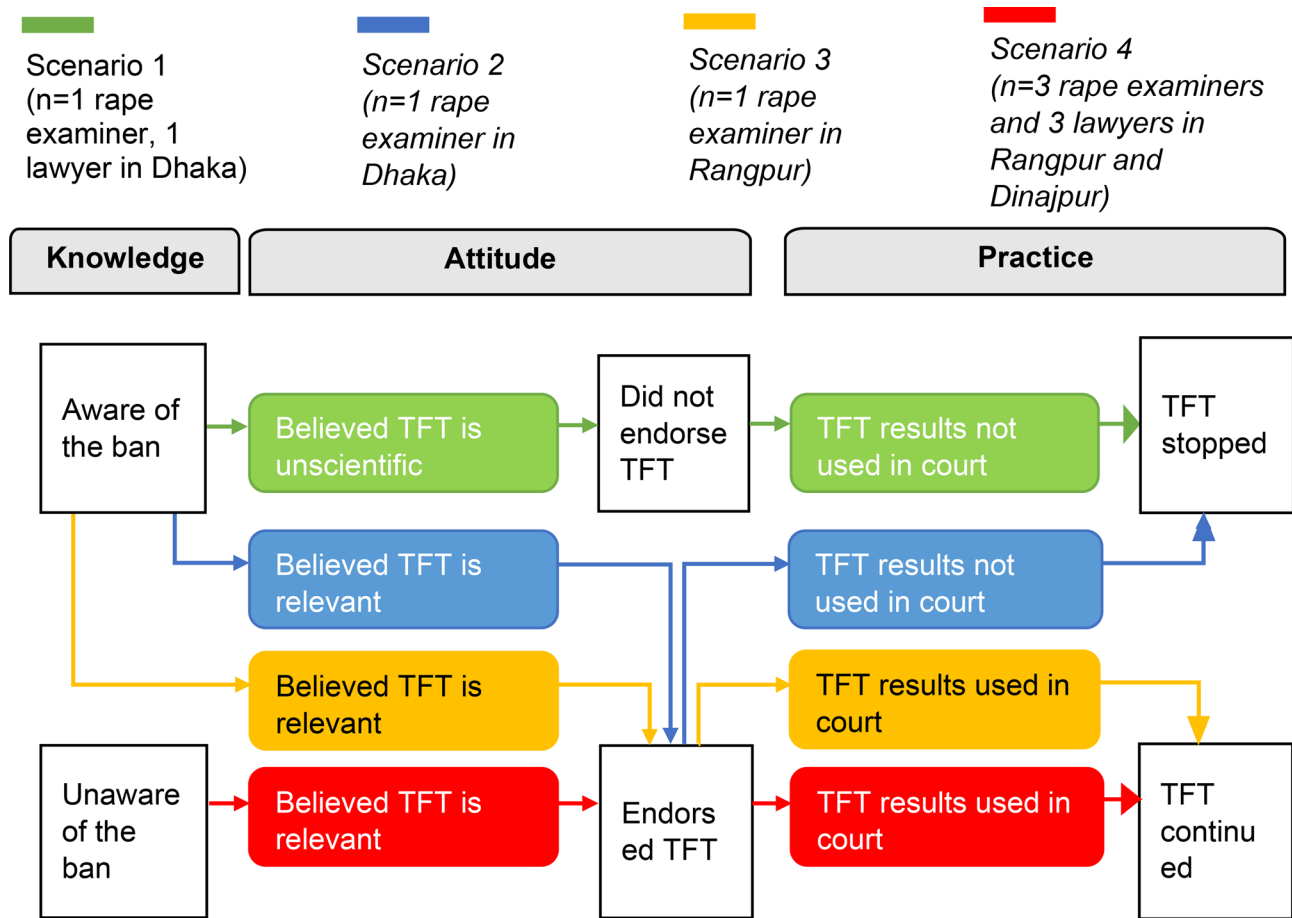


Fig. 1 Different scenarios in knowledge, attitudes and practices among rape examiners and lawyers

Third, the Protocol and reporting forms were formally distributed from the central level to Divisional Directors’ offices and subsequently to all health facilities. However, this process did not ensure delivery to or uptake by designated rape examiners at the facility level. COVID-19 also had its toll on appropriate dissemination of these important documents. The ministry staff explained,

We sent the Protocol and new reporting forms to the Divisional Director’s office. From there, they were sent to the health facilities through the Civil Surgeon’s offices. However, the healthcare providers who participated in our training mentioned that they never received the Protocol and the forms. In multiple districts we found the Protocol and the forms were left under lock in the storerooms and the packages remained un-opened

Emerged scenarios of implementation and underlying factors

Figure 1 illustrates the four main scenarios that emerged from the data in relation to the knowledge, attitudes and practices regarding the implementation of the ban among

rape examiners and lawyers. Scenario 1: Had knowledge of the ban, did not endorse TFT and stopped using TFT; scenario 2: Had knowledge of TFT ban and stopped using TFT despite strongly endorsing TFT; scenario 3: Had knowledge of the ban, did not endorse yet used TFT; and scenario 4: Lacked knowledge of the ban, strongly endorsed and used TFT. We present below the factors underlying each of these scenarios, working as facilitators and barriers to implementation.

Scenario 1: Had knowledge of the ban, did not endorse TFT and stopped using TFT

Scenario 1 is based on KIIs with one rape examiner and a lawyer from Dhaka. The rape examiner reported that the health facility in scenario one received the MoHFW circular regarding the ban, and the key providers responsible for rape examination of the facility were aware of the ban.

We are aware of the High Court ban on the Two-Finger Test. A government circular was sent to our facility. The [forensic] department head informed

us about the circular and the ban on TFT. - KII 33, Rape examiner, Dhaka

However, the circular on TFT ban was not communicated officially at the department as the rape examination support staff did not know about the circular and came to know about the ban through a newspaper clip displayed at the facility.

I don't know about any Government circular regarding the two-finger test. I just saw a newspaper clip displayed on the table in our office that said that the two-finger test was banned. KII 35, rape examination support staff, Dhaka

Although the lawyer interviewed in Dhaka did not receive any government circular, he was involved with NGO activism around the TFT ban and was well informed about the ban.

Before the ban was implemented, there were several seminars and meetings aimed at building consensus against the practice. I participated in these discussions. The ban was eventually enacted in 2018. - KII 30, Lawyer, Dhaka

Understanding the irrelevance of TFT in proving rape contributed to rape examiners' endorsement of the ban in Dhaka. Their involvement in the government-led training program as facilitators enhanced this understanding.

The government prohibited the Two-Finger Test after recognising its ineffectiveness in [proving] rape cases. Crucial factors such as circumstantial evidence and the survivor's testimony are sufficient to prove rape. Vaginal elasticity is irrelevant [here] as evidence... We are trying to raise awareness on this by providing training for healthcare providers. - KII 33, Rape examiner, Dhaka

The lawyer from Dhaka gained knowledge on the irrelevance of TFT in proving rape from different meetings and seminars on the topic. He dismissed the examination as an outdated method with no evidentiary value. He emphasised the importance of DNA and other forensic evidence in proving rape.

TFT is an outdated and unscientific test. We emphasise on use of scientifically valid methods like DNA test to prove or disprove rape. - KII 30, Lawyer, Dhaka

Knowledge of the ban was an important factor in stopping the use of TFT and in court proceedings in Dhaka.

The rape examiner reportedly discarded TFT and mentioned as a key informant on the practice of her facility that TFT is not used in the health facility.

It (TFT) was practiced in our facility before. However, we heard that there was a writ petition to stop this test. Then, we received a government circular not to do it. After that, we stopped using the test [in evidence collection on rape]. - KII 33, Rape examiner, Dhaka

The rape examiners from Dhaka understood the lack of validity of the TFT in proving rape.

This [TFT] is a judgmental test. Vaginal laxity cannot prove rape. There is other important evidence such as circumstantial evidence, testimony provided by the survivor and forensic evidence that can prove rape. KII 33, Rape examiner, Dhaka

Scenario 2: Had knowledge of the TFT ban and stopped using TFT despite strongly endorsing TFT

This scenario was based on the KAP of a rape examiner in a tertiary health facility in Dhaka. Although this rape examiner did not see the circular on the TFT ban, she came to know about the ban from different sources, such as dailies, senior healthcare providers, and personal experience of testifying as a medical expert in rape trials. Despite knowing about the ban, the rape examiner erroneously believed that TFT was indispensable for determining forceful penetration. This misconception not only reveals a fundamental misunderstanding of sexual assault but also underscores the problematic reliance on TFT, which is crucial evidence in rape trials. She said,

Without inserting fingers [into the vagina], it is difficult to say whether recent forceful penetration has occurred or not. That place (vagina) will be lax, there can be injuries and lacerations. If fingers can be inserted then vaginal penetration is confirmed. Therefore, one cannot prove rape without it (TFT). - KII 31, Rape examiner, Dhaka

Here, the rape examiner assumed that the vagina of a woman or girl is easily penetrable or lax after rape (penetration). Despite her strong conviction on TFT to prove rape, she did not perform the test in fear of receiving punitive measures from court. It is clear from the quote below that only apprehension about retribution in cases of non-adherence to the law made this rape examiner stop using TFT.

We did not receive any directives from the Ministry. ... However, we still stopped using TFT to avoid

harassment in the court. - KII 31, Rape examiner, Dhaka

Scenario 3: Had knowledge of the ban, yet endorsed and used TFT

This scenario was based on the KAP of a rape examiner from a tertiary health facility in Rangpur. This rape examiner did not see any circular but was informed about the ban by the Head of the forensic department. She put it in her words as follows.

I am not aware of any government circular. I just know that TFT is banned by the Court, but I don't know the details of it. Our departmental head informed all of us [about the ban] when we joined the department. That's how we came to know it. - KII 21, Rape examiner, Rangpur

The rape examiner did not understand the irrelevance of TFT in proving rape and held favourable attitudes regarding TFT. She assumed that TFT was banned due to the potential risk of hymen rupture or further injury among underaged and unmarried rape survivors. On the basis of this understanding, she supported the ban in the case of this group of females. She justified the use of TFT for married women since, according to her, they are not subjected to the risks mentioned above.

We do not perform TFT after the court order. In the case of unmarried girls, we inspect only the injuries without inserting fingers [into the vagina]. However, when they are married or already have two or three children, their [vaginal canal] is capacious. In such cases, there are no restrictions on inserting fingers [into the vagina]. KII 21, Rape examiner, Rangpur

Scenario 4: Lacked knowledge of the ban, strongly endorsed and used TFT

This scenario was based on three rape examiners from two health facilities in Dinajpur, one facility in Rangpur and three lawyers from Rangpur and Dinajpur. Two primary factors hindered the acquisition of knowledge regarding the TFT ban by the three rape examiners in these facilities. The first is inadequate dissemination of the ban. Despite the government's 2019 issuance of circulars, these rape examiners remained uninformed about the ban. One of these rape examiners from Dinajpur said,

It [TFT] was not banned. We did not receive any circular. We would have received a circular from the government if it was banned. In that case, we wouldn't do it. KII 10, Rape examiner, Dinajpur

Interestingly, one of them was aware of the writ petition. However, not coming across any circular, she assumed that it must have been overruled.

There was a High Court writ petition to stop the two-finger test a while ago. However, we didn't receive any government circular after that. Maybe everyone resisted the ban, so it was not finally decreed. If TFT was banned, we would have received a circular from the government. - KII 10, Rape examiner, Dinajpur

The data also revealed that the training program targeted a male examiner from one of these facilities, where female examiners typically conducted rape examinations. This trained male examiner had not shared information about the TFT ban with the female rape examiners. These three rape examiners strongly endorsed TFT. One of them explained the basis for her conviction regarding TFT as follows.

This is a big issue for legal cases. If two fingers can be inserted into the vagina, it essentially implies that rape has occurred. If not raped, two fingers will not go inside the vagina. - KII 6, Rape examiner, Dinajpur

One of them believed that TFT results have crucial evidentiary value, particularly in identifying false cases.

Without TFT it [rape] cannot be proved. Many will lie about being raped. - KII 10, Rape examiner, Dinajpur

It is clear from the following quote that TFT was also performed to fulfil the reporting requirements. The facility did not receive the new medico-legal certificate form that does not ask for TFT results.

TFT is necessary. It is required for filling out the form [medico-legal certificate]. - KII 10, Rape examiner, Dinajpur

A rape examiner from a secondary facility, not responsible for providing medico-legal certificate, also performed TFT during clinical examination of rape survivors.

It is used to examine internal injuries, size of the uterus, any kind of laceration or tear inside the vagina. Inspection through the eye is not as accurate as feeling through the hand. Additionally, when defloration of hymen occurs, I need to insert fingers to understand. - KII 6, Rape examiner, Dinajpur

The lawyers in both Rangpur and Dinajpur lacked knowledge due to the absence of any official communication. The government-distributed circulars failed to reach the three lawyers interviewed from Rangpur and Dinajpur.

I don't know about any government circular or directives on TFT. – KII 7, Lawyer, Dinajpur

The lawyer from Rangpur was convinced that TFT is important for determining rape.

TFT is undoubtedly important to identify rape. – KII 23, Lawyer, Rangpur

The lawyer from Dinajpur also believed that a rape case would be strong only if the TFT results confirmed rape. Otherwise, the accused may be acquitted.

Without TFT, details of injuries are often not clear, and it becomes difficult to prove rape. This helps the accused [at the end of the day]. – KII 7, Lawyer, Dinajpur

All three lawyers interviewed from Rangpur and Dinajpur reported that TFT is still used in legal proceedings. The lawyer, with seven years of experience in the Rangpur district court, reported that the court demanded to see the TFT result during hearings. He also reported that since the result of TFT is provided in the medico-legal certificate, it is taken seriously by the court.

Court wants to verify whether the vaginal canal is one or two fingers wide. We have seen that it [TFT] is still practiced in medical examination and it [the result] is used in the Court. – KII, 23, Lawyer, Rangpur

Discussion

This is the first review of the implementation of the TFT ban in Bangladesh. Our study demonstrated that the ban was poorly implemented at the study sites outside of Dhaka. Findings revealed inadequate awareness of the TFT ban among stakeholders particularly working in the periphery districts is a major implementation barrier. This finding aligns with studies on exploring implementation of banning a similar harmful practice, female genital mutilation [27]. The study found that awareness and understanding of the ban were inconsistent among stakeholders varying dramatically across different study sites.

In Rangpur and Dinajpur, the majority of healthcare providers and legal professionals were unaware of the ban, endorsed TFT, and continued to use it in evidence collection of medico-legal examinations of rape survivors. The courts in these districts continued using

TFT-generated results in the proceedings. Findings from India echo similar results, with 83% of doctors lacking knowledge regarding the Criminal Law Amendment Act (CLA) 2013, which includes the TFT ban; 54% of doctors believe that TFT is essential for evidence collection on rape; and 65% of doctors still use TFT for this purpose [28]. Our study demonstrated that the situation was better in Dhaka, where the stakeholders from the health and legal sectors were aware of the ban, some of whom still endorsed TFT, but they were aware that the court did not accept TFT results; thus, none of the rape examiners of studied health facilities in Dhaka practiced TFT. This highlights that a legal ban alone is often insufficient without effective knowledge dissemination, knowledge and right attitude uptake at stakeholder level and alignment among sectors. This finding resonates with previous evidence emphasising the criticality of multisectoral approach and coordination between health and other sectors in responding to violence against women [29].

Our analysis of themes and patterns revealed four distinct scenarios in the ban implementation, shedding light on the factors underlying compliance with or non-compliance with the ban. Scenario 1, an exemplary situation, where all the components of KAP were in sync with each other and represented proper knowledge of the ban, reformed attitudes, leading to refusal of TFT, and non-use of the test. Scenarios 2 to 4 indicate that judicial practice is a critical factor in ban implementation in the health sector, regardless of whether a case reaches the court. Scenario 2 demonstrates that dismissal of TFT results by the court can effectively deter its use, despite persistent TFT condoning attitudes of healthcare providers. In contrast, scenarios 3 and 4 highlight that courts' demand for TFT results sustains TFT, regardless of the right knowledge or attitudes of the stakeholders.

Our findings lend support to the existing evidence that inappropriate legal proceedings sustain unscientific medico-legal results, including TFTs, over survivors' testimonies [11, 13, 16, 30–32]. Huda (2022) [16] noted that in a low-resource setting such as Bangladesh, such practices in the legal sector place undue pressure on healthcare providers to produce conclusive medical findings, sometimes leading to invasive and harmful practices such as TFT. Thus, a multi-pronged and multisectoral solution to this problem is critical for the implementation of the ban. Although ban implementation can be facilitated by appropriate legal sector responses, we need to pay attention to scenario 4, where deeply entrenched endorsement of TFT in proving rape made the healthcare provider perform TFT in the name of “justice”. Their perceived sense of responsibility for distinguishing “true rape victims” from “false rape victims” and the belief that TFT is useful in sorting this out puts survivors at risk of TFT. This aligns with findings from previous studies [4, 13]. To

change such ingrained convictions in TFT, it is imperative to impart training to healthcare providers on the lack of scientific validity of TFT in proving rape.

In contrast to prior evidence that training on protocol for clinical care of sexual assault survivors enhanced knowledge and reduced the use of TFTs despite persistent pro-TFT attitudes [33, 34], the current study shows that the government training of healthcare providers in Bangladesh did not work well. First, it failed to cover all relevant healthcare providers. Even when it reached the relevant healthcare providers, it was not necessarily effective in raising awareness regarding the ban or changing deep-rooted TFT condoning attitudes. One potential explanation for the observed ineffectiveness could be the absence of specific content and discussion within the protocol concerning the TFT ban and TFT's irrelevance in rape examination. Studies from LMICs resonates with our findings that unscientific forensic medical practices, including TFT, persist due to a lack of training gaps [29].

The administrative shortcomings in distribution mechanism of the circular and the revised medico-legal forms highlight a critical gap in implementation of the TFT ban policy. Our findings revealed that the passive distribution mechanism without ensuring active uptake by the stakeholders hindered effective implementation of the Protocol and new reporting formats. This finding aligns with existing evidence showing how that in low and middle-income countries, policy diffusion often fails in absence of accountability and follow up mechanisms [20, 35, 36].

Our findings also revealed NGO staff in the periphery lack of knowledge limiting their involvement with effective activism to stop TFT. This observation also aligns with previous evidence indicating that in low and middle-income countries, rural-urban divide in access to information among NGOs and women's rights activist groups exist [37] and it affects their ability conduct effective advocacy [38, 39].

Strengths and limitations

Most of the previous studies [11, 25, 28] examined knowledge, attitudes, and practices separately and did not adequately explore the links among them. Most of them were also exclusively focused on the health sector, ignoring the interplay between the health sector and other sectors (e.g., legal and NGO), limiting a broader understanding of the issues and potential solutions. The strength of our approach lies in the application of the grounded theory approach in data analysis, where we not only examined the knowledge, attitudes, and practices of the different stakeholders but also pulled the different pieces together to make sense of the factors underlying compliance or noncompliance with the ban in the health sector, where TFT has historically been performed.

This study is subject to certain limitations. First, our study is not based on a sample representative of Bangladesh. Thus, the study findings may not be generalisable to the whole country. Our site selection was also purposive. As mentioned in the Methods section, the districts outside of the capital area were selected to allow us to understand the effect of government training.

In Dhaka, where effective ban implementation was observed, the study included two out of the four tertiary medical college hospitals, where rape examination was typically performed. Therefore, the findings from Dhaka reflect the situation within the studied healthcare facilities only.

There was one tertiary medical college hospital in each of the peripheral districts, the only facility where medico-legal examination is typically performed. In Dinajpur, our study covered the only assigned rape examiner in the facility. In Rangpur, we interviewed one of three assigned rape examiners from the facility. Thus, the KIIs shed light on TFT practices across the whole district at both sites.

The study did not include judges as participants, who may potentially stop use of TFT results in the legal proceedings. However, we covered lawyers as KIs and asked them questions about practices in the court. Thus, while the judges were not included as KIs, we still have information on use of TFT in court proceedings, which may or may not be influenced by their opinion.

The small sample size of rape survivors/families is a limitation of this study. However, for ethical reasons (e.g., confidentiality, re-traumatisation), it was challenging for us to contact and interview them.

Conclusion

The assessment reveals a bleak picture of the implementation of the TFT ban outside of the capital. Persistent lack of knowledge of the ban, misconceptions regarding the evidentiary value of TFT in rape case in the healthcare and legal sectors, lack of training and availability of the required revised rape examination forms led to poor implementation of the ban, infringing on the sexual, reproductive health and human rights of the survivors of rape. In order to stop use of TFT in the health sector and use of its results in the legal sector clear directives must be shared with the relevant health and legal sector staff.

In the health sector, more effective training of relevant staff needs to be conducted explaining futility of TFT in proving rape and its harm to the survivor. Training must cover all designated rape examiners, including those in peripheral and lower-tiers of facilities. Monitoring and supervision of the ban must be ensured. Civil society organisations (CSOs), women's rights groups, and NGOs should be engaged as partners in the ban implementation. These stakeholders are capable of conducting advocacy, community sensitisation, independent monitoring,

and providing survivor support. A coordinated, rights-based movement against TFT in rape examination can help shift institutional norms and ensure that survivors receive dignified, ethical, and equitable healthcare and justice.

Our findings highlight the need for a multidimensional and multisectoral approach involving health and legal system as well as the civil society organizations for successful implementation of the TFT ban. A strong monitoring system must ensure elimination of TFT in proving rape.

Abbreviations

CLA	Criminal Law Amendment Act
CS	Charge-sheet
CSO	Civil society organisations
KAP	Knowledge, Attitude and Practice
MoHFW	Ministry of Health and Family Welfare
MLAs	Medical Lab Assistants
NGO	Non-governmental organization
SDG	Sustainable Development Goal
TFT	Two-finger test
UHC	Upazila Health Complexes

Acknowledgements

We gratefully acknowledge the study participants, especially the survivors of rape and their parents, healthcare providers, legal practitioners and law enforcement staff, and NGO staff, who generously gave their time and shared their experiences and views for this research. The writers would like to thank the governments of Bangladesh and Canada for providing icddr, b with core support.

Author contributions

NA [corresponding author] contributed to obtaining ethics approval, research conception, design, supervision of data collection and transcription, data analysis and interpretation, and manuscript writing. MSRK contributed to the design, validation and review of the manuscript. KGMR contributed to ethics approval, validation and review of the manuscript. RTN contributed to ethics approval, research conception, design, and review of the manuscript. All the authors have read and approved the final manuscript.

Funding

The study received funds from the Department of Foreign Affairs, Trade and Development (DFATD), through Advancing Sexual and Reproductive Health and Rights (AdSEARCH), Grant number: 02063. The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Data availability

Relevant data to support the analysis are included in this published article. The raw data used in the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The study received ethics approval from the icddr, b Ethical Review Committee (PR-23095) and Dhaka Medical College Ethical Review Committee (ERC-DMC/ECC/2023/294). The study participants voluntarily agreed to participate in the study, and written informed consent was obtained from each participant. The anonymity and confidentiality of the data were ensured. The participants were also informed that they had the right to withdraw from the study at any time without any consequences.

Consent for publication

Written consent to publish the study results was obtained while maintaining participants' anonymity and confidentiality from all participants. Additionally, all authors provided their consent to publish this article.

Competing interests

The authors declare no competing interests.

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Received: 31 August 2025 / Accepted: 17 February 2026

Published online: 03 March 2026

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