

AWARENESS OF BENEFITS AND RISKS ON DNA PROFILE STORAGE IN FORENSIC DNA DATABANK: MALAYSIAN EXPERIENCE

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Abstract:

In order to help in crime solving and justice upholding, the Forensic DNA Databank of Malaysia (FDDM) was formally founded in December 2015. Government initiatives are raising public awareness, but there are still some misconceptions and worries concerning the gathering, storing, and use of DNA samples and data. Therefore, the objective of the study is to reveal the awareness of benefits and risks of profile storage in forensic DNA data banks. A small number of public informants were chosen using the qualitative technique. These included ten informants among public and five practitioners from the Royal Malaysia Police (RMP). The thematic analysis method is used in this study, and the findings are very unexpected. The results of Focus Group Discussions (FGD) indicate that informants' knowledge of the benefits and risks of storing DNA profiles in forensic DNA data banks is still lacking. If practitioners in the relevant authorities have a low level of awareness, it clearly shows the question of how the Malaysian forensic DNA data bank is sustainable in the eyes of the public. In recommendations, the government can work with all important government agencies, such as the judicial system, the attorney general's office, and the department of chemistry to increase the awareness among public on the benefits and risks on storing DNA profile in forensics DNA databank. It is intended that future research will involve more relevant stakeholders and employ a combination of methodological approaches for wider scope.

Keywords: Forensics, DNA, Data bank, DNA Profile.

1. Introduction

Those who have been found guilty, volunteers, victims, and others who might be the focus of police investigations and are usually subject to local laws have their DNA profiles collected, stored, and used by DNA databases (Smith & Bluth, 2016; Divakar, 2017; Faran et al., 2018; Samehsalari & Reddy, 2018). In certain countries, the government is working to ensure that more criminals are prosecuted and that, upon release, they are not able to commit the same crimes again by expanding their DNA data banks (Zadok et al. 2010, Machado and Prainsack 2012). Theoretically, the more people whose DNA profiles are included in the database, the better the likelihood of identifying criminals. Some scholars have argued that forensic DNA testing poses a threat to civil liberties because it stores profiles in a computerised database that serves as a criminal identification tool. This database is thought to jeopardise human rights, including freedom, autonomy, privacy, consent transparency, and moral and physical integrity (Machado & Silva 2019; Weinroth, 2017; Van Camp & Dierickx, 2008). The following are additional risks associated with forensic DNA testing that have been documented in the findings of other studies: racial stereotypes and social stigma because of

disputes and arguments among particular social and ethnic groups in the forensic DNA data bank, which emphasise the importance of religion and belief (Chow-White, 2011; Skinner, 2013). A few issues include the openness with DNA data is used, the potential for false positive results, the lack of international standardisation for DNA analysis, the absence of ethical oversight of the flow of information through the legal system, and the potential for data protection laws to be broken (Tomm, 2018; Machado, 2018; Amankwaa, 2019; McCartney, 2014). Lack of knowledge and education also has a relationship with young people in previous studies (Tomm, 2018; Machado, 2018).

The benefits and risks of storing DNA profiles in the Malaysian Forensic DNA Data Bank are still not well studied in Malaysia (Hakim et al., 2019; Munir & Yong, 2008). Indeed, information about the presence and use of DNA profile storage in the Malaysian Forensic DNA database is still left behind. This is because FDDM is a relatively new concept and there haven't been media platform or activities to raise awareness of the issue (Rahman et al., 2021). Despite efforts by the government and related organisations to enhance public awareness of the database, most Malaysians, including enforcement authorities, are not familiar with FDDM (Mohd. Munzil Muhammad, 2017). There is still a need to increase public education and understanding, particularly considering concerns regarding privacy and civil rights. For the system to remain sustainable and the public to remain trusting, it is imperative that the government and related agencies stay in contact with the public and address their concerns. There is a research gap concerning the benefits and risks of storing profile in FDDM, as evidenced by the government efforts to inform the public. The reason for the lack of knowledge about the advantages and risks is attributed to low-income, impoverished families who do not have enough access to life (Guerrini, Robinson, Petersen & McGuire, 2018; Murphy, 2018; Genomics, 2019). Thus, research particularly public opinion and intergovernmental perspectives on forensic DNA data banks is crucial to describing a strong governance model in DNA data banks in Malaysia in a morally sound, open, and effective manner.

2. Literature Review

A comprehensive evaluation of several field studies by Schroeder (2007), Briody (2004), Dunsmuir et al. (2008), and Tully (1998) who have examined the value of DNA testing in criminal investigations. Researchers point out some of the limitations of empirical research, such as sample selection bias or generalisation mistakes, even if these studies provide empirical evidence of the usefulness and application of DNA technology for criminal investigations. According to Teodorovi, Mijovi, Radovanovi, and Savi (2017), ineffective monitoring and efficiency are the main causes of forensic analysis on DNA-related concerns. According to Tozzo, Fassina, and Caenazzo (2017), every laboratory should routinely go through a "Blind Test," or an unexpected expert inspection, to verify the correctness of any results. Forensic DNA data banks are rarely made public; thus practitioners don't have the basic knowledge or expertise to handle them. Furthermore, the DNA data bank is unknown to individuals who are not working on the project (Machado & Santos, 2011; Teodorovi, Mijovi, Radovanovi & Savi, 2017; Machado & Silva, 2014; Machado & Silva 2016). The relationship between socioeconomic variables and the general public's ignorance about criminal DNA databases has been well proven by several studies that looked at public opinion regarding the advantages and risks of these databases (Tozzo, Fassina & Caenazzo, 2017; Guerrini, Robinson, Petersen & McGuire, 2018).

Numerous earlier studies have examined the controversies surrounding the gathering, storing, and authorization of DNA samples (Weinroth, 2018; Williams & Johnson, 2004; Guerrini, Robinson, Petersen & McGuire, 2018; Anderson, Stackhouse, Shaw & Iredale, 2010). Furthermore, elderly is more cautious about the advantages and disadvantages of using DNA profiles containing DNA information for reasons other than criminal investigations, and they are more upbeat about the usefulness of storing forensic DNA data banks (Curtis, 2014). However, some results by Machado & Silva, 2014; Curtis, 2014; Curtis, 2009)

Williams, Johnson & Martin, 2004) shows that the public's perception of DNA analysis in criminal cases is unrelated to age. Gender and socioeconomic status, as well as community knowledge of the DNA data bank, have been linked in several studies. These relationships hold true when accounting

for age and educational attainment (Anderson, Stackhouse, Shaw, & Iredale, 2010; Zieger & Utz, 2015; Machado, Santos & Silva, 2011). Higher educated people were less likely to believe that criminal DNA databases could contribute to more progress and fair justice (Nwawuba et al., 2022 and Weinroth, 2018). According to another research, people who work in law enforcement such as police, attorneys, and forensics are more familiar with the subject and aware that a national DNA database exists (Zieger & Utz, 2015). In a different study, legal experts supported using the global DNA database to combat crime without invading people's privacy more than they did building the database without authorization from the public. According to some research findings by Maciado & Silva (2014); Machado & Silva (2015); Guerrini et al., (2018), there is a significant relationship between employment and how society views DNA forensic analysis in the context of crime. Seven out of ten studies that examined the impact of gender found no correlation between the public's knowledge of forensic DNA databanks (Machado & Silva, 2014; Teodorovi, Mijovi, Radovanovi & Savi, 2017; Dundes, 2001; Gamero et al., 2007; Gamero et al., 2008; Curtis, 2009; Curtis, 2014). Three studies consistently demonstrate that women support forensic DNA testing more frequently (Curtis, 2014).

3. Materials and Method

The research utilised a qualitative methodology, utilising Focus Group Discussions (FGD) to conduct interviews with 15 informants and applying thematic analysis for in-depth analysis. Interviews were performed around Selangor and Kuala Lumpur with informants who were chosen as well as officers from the RMP. The qualitative data sources such as surveys, focus groups, interviews, visual aids, field research, observation, action research, and secondary sources, are analysed using thematic analysis (Coffey, Atkinson & Paul, 1996; Clarke & Braun, 2016). Ten members of the public were chosen as informants and five police officers from RMP were chosen as informants.

4. Findings

This study aims to reveal the awareness and the understanding of the benefits and risks of profile storage in forensic DNA data banks in Malaysia. The study's findings indicate that there is still a lack of public knowledge and comprehension, with some informants still ignorant of the existence and purpose of DNA forensics data banks in Malaysia. In the process of data collection, this study is divided into 2 groups, namely the First FGD which consists of informants among the public with 10 informants. The group of informants is divided into 2 groups namely Group A consists of 5 informants from the age group of 18 to 40 years while Group B consists of 5 informants aged 41 and above. Ten informants make up this First FGD: five (50%) males and five (50%) females, with an additional five (50%) singles and five (50%) unmarried. Fifteen percent of them are in the 18-40 age range, and five more are in the 41–65 age range. Six people (about 60%) are Malay, followed by two Chinese people (20%) and two Indian people (20%). Of the informants who are civil servants, 5 (50%), 4 (40%), and 1 (10%) are unemployed. Two percent of the informants have an income of less than RM1500, while three percent have an income between RM15001 and RM3000, three percent have an income between RM3001 and RM5000, and two percent have an income of RM5001 and beyond. Eight (80%) of the informants are Muslims followed by Chinese 1(10%) are Buddhist while a total of 1(10%) are Hindu.

The findings of this First FGD study were based on two small groups: Group A represents young, and Group B represents adults. The researcher simultaneously divided into five members of the public from Group A and Group B to find out how the public felt from different of ages about the benefits and risks of having profiles stored in the database of the Malaysian forensic DNA data bank. The First FGD study's findings are significant because they can support the researcher's conclusions in addition to the data from informant interviews with law enforcement and other related fields. The findings of interviews with enforcement practitioners also demonstrate that there is still a lack of information and a low degree of awareness. Most respondents expressed a similar opinion, stating that they were unaware that Malaysia had a forensic DNA data bank. It appears that none of the

people who fall within the public category are aware of the forensic DNA data bank's existence or purpose in Malaysia. Most informants simply mentioned that the RMP oversees the identification procedure or any crimes that occur at the site; they were unaware of any interaction with other parties.

The study's conclusions demonstrate that Group A, which is made up of young people, is unaware of the forensic DNA data bank's existence and does not appear to care. Group A members also lack basic knowledge about the advantages and disadvantages of storing DNA profiles in the database. The responses from the adults in Group B, who are aware of the forensic DNA data bank's existence and the community for whom it serves and its function to the community. The answer from Group A can be seen clearly as below:

"The DNA of people involved in any crime must be taken as evidence near the body, right...I think so...I don't know if there is a DNA data bank in Malaysia, like CSI? Why don't I know? My mom and dad also watch CSI, remember that there is nothing like that in Malaysia... My mom said that it is easy in Malaysia, many criminal cases can be solved quickly."

(Informant A)

"I know what DNA is by watching movies or western TV dramas... there is no official announcement from our government, I have never even heard about the forensic DNA database, I always only look at the written of forensic clothes when near a crime scene, there is no written in the data bank DNA... How do I know the existence of the DNA databank? Is there any government information for us? I remember RMP managing everything, or am I wrong?"

(Informant B)

"DNA is taken close to our body, right...is there a DNA data bank in Malaysia like in other countries? If so, why don't I know? So far, I have never seen it on TV or anywhere, the government should tell us if it exists, then we will know what the benefits or risks are, we are only ok if there is new information to know, then we can answer if people ask, the existence of banks has been around for a long time... The data is yes, but why don't I know, even though I'm actively reading news or info on TV."

(Informant C)

"I also watched the drama, just watched CSI and I know how forensics goes into DNA data, there is no official information from the government as far as I know, but in Malaysia it doesn't even exist, like there is no information... if I'm wrong I might be wrong, but seriously it's not know it exists, then how do you know the benefits or risks are there, right?"

(Informant D)

"I know about DNA through movies and dramas outside Malaysia... No, until now I have not received any information about it, I think only developed countries like USA or UK have this data. Forensic DNA bank, seriously, I was a bit surprised when it was said that it has been established in Malaysia for more than 10 years, the government needs to spread that information more to the people."

(Informant E)

Statements from Group A, however, are contrary to Group B, which consists of adults aged 41 years and above who express some basic knowledge about the benefits and risks of storing DNA data in forensic DNA data banks in Malaysia. It is clearly seen through the statements below:

"I know a little bit about DNA, because my son also works in the Chemistry Department, but I still don't know much... what I know, the RMP forensics department and the Chemistry Department are indeed involved when there is a criminal case... Forensic data only has a database, there is not much information I think, the government should publicize so that the public knows what DNA is, what are

its benefits and risks, only when the level of awareness and knowledge is there... then can I give my opinion... as a public plus a parent, I think it's good there is a forensic DNA data bank, it is easy for us to detect criminal cases... but it needs to be announced prudently by the government... even now the people are happy to have information just at their fingertips..... is there any publicity given?"
(Informant A)

"I think the government does not give information officially, if you watch a drama or movie on TV, there is a lot of DNA information, I read recently that I had to google to know how criminal cases in Malaysia can happen. I just found out that there is a DNA forensic data bank. It has been established for a long time and is advanced. The government must disclose this good thing. Let everyone know about the benefits and risks. Don't blame the young boys for negative comments. At least the information has arrived. To me, it was good to have a forensic DNA data bank in Malaysia, dealing with crime through forensics should be easy...but why the government or RMP do not publicize its existence."
(Informant B)

"I know very little about DNA...but only a little about our body tissues that the RMP takes when criminal cases occur, but I did not know that there is a forensic DNA data bank in Malaysia, it has existed for a long time but there is no publicity...things good for the community, I think everyone can accept it, there may be critics, but now it is advanced and modern, the mentality of the community can accept good things, but there is a lack of information for the people, it seems that the majority of people know through TV, but the knowledge is very minimal , therefore I feel like it's unfair to give my opinion. But you asked my opinion, for me this forensic data bank is good...there are good and bad things are normal in one system...therefore the government needs to announce that..."
(Informant C)

"To me, I say frankly, very minimal information from the government, but if there is a bank data for DNA forensics in Malaysia, it is good for us, it is good to solve crimes quickly, we are safer in our community, but it is very sad that the information not given, I have some information about DNA forensics, but all from TV and social media, not from government channels,... so for those who don't know the platform, how can they know about the benefits and risks of DNA databases? Whether we know a little or a lot depends on how the government does it."
(Informant D)

"I know about DNA from my children, not much information from the government, but a good effort if the government has a data bank for forensic DNA... the government can help, there are many benefits for the people, but there are definitely risks.... if information and hype are good, there are also risks and the people can understand... Always watch Malay dramas, there are not many forensic stories in Malaysia... maybe there are dramas like CSI that can interest young people and can benefit from this DNA data.... the government must work on the best platform so that RMP and related agencies go into the field... I know only RMP, but it seemed don't have enough information, everyone thought that RMP is in charge, I think there are many more agencies... so please give more info so that we can give our response accordingly".
(Informant E)

The Second group of informants which Group B consist of Police Officers in RMP who work in the field of law and enforcement showed average level of knowledge. The statements of informants can be seen clearly as below:

" Yes, I know that DNA is relevant to evidence in criminal proceedings, usually the RMP forensics department and the Chemistry Department will work together.... I know that there is a DNA data bank because I work as a police officer. If the public may be a bit limited from information... but as

an officer of the RMP, the basics regarding DNA and related to crime must be there.... Maybe not deep but know that there is a forensic department, a Chemistry department that manages it".
(Informant A)

"Yes, I know because in the RMP, there is a forensic department that manages criminal cases, DNA and so on. It's their job. I'm in another unit, but I know a little bit about the basic knowledge, but not much. Many of the public may not know, we are work under one roof and as a member of the Police, but I don't know much about the forensic DNA Bank database, maybe there isn't much information due to different units and departments"
(Informant B)

"I know DNA but not much because I don't work in the RMP forensics department, but I know a little about the process when I see a crime case, the forensics department does work, I look at it but I can't interfere because the crime scene is a sensitive place, so I don't know much about the process, the rest I watched on TV like CSI, but as a RMP's officer, I think only those who work in the forensic department know how the forensic DNA database operates... I think the general public doesn't know much because this thing is difficult and all secrecy must be maintained, that's why the government doesn't publicize it much....but in my opinion, if this bank exists for the good, it needs to be publicized to the people...if I didn't work as a police member, maybe I wouldn't even know if the bank exists or not this data and its function..."
(Informant C)

"Yes, I know but it's limited because I'm not in the forensics department. I'm in another unit. Just listening like that when there's a crime case, the forensic team will go down to the scene to take evidence, DNA and so on, what's the process I don't know, but it is true that RMP forensics will work with the Chemistry Department if necessary... I only know about the existence of the forensic DNA data bank, so far, no information has been widely publicized to all RMP members, maybe I am wrong.... but I think there is no regular information about this DNA data bank."
(Informant D)

"Yes, I know about DNA because I am one of the members of the RMP forensics team, all the DNA procedures I know may be due to my unit, yes it is true that we may not publicize much due to confidentiality reasons but when there is a Malaysian forensic DNA data bank, it needs to be publicized to the people, because the community has to know the benefits or risks if we have this database that can systematically reduce crime....the public doesn't know what DNA is, let alone a forensic DNA database run without knowledge of public. I think it was not right..."
(Informant E)

The objective of awareness of the benefits and risks of storing DNA profiles in forensic DNA data banks in Malaysia has clearly been met, as evidenced by the statements from the First and Second FGDs. All practitioners concur that the public may be underinformed about the purposes of DNA and the availability of forensic DNA data banks, resulting in restricted understanding. If the government wants to receive positive feedback on a policy, it must publicise it more frequently. The findings of this study are consistent with Machado (2014) and Machado and Silva (2016), who found that the public has little knowledge about DNA and the presence of forensic DNA data banks, even in developed countries such as the United States and the United Kingdom. This finding is also consistent with System Theory, which shows that the success of a country's system is dependent on efforts to disseminate information to the public (Cao, 2017). The absence of knowledge will drive the public to wonder, resulting in the weakness and failure of the policy being studied. The lack of knowledge regarding the presence of a forensic DNA data bank in Malaysia will impair the well-being and harmony of the people.

4. Discussions and Conclusion

The first conclusion that can be drawn is that the First FGD group of informants representing the public has a limited awareness of the benefits and risks of preserving DNA profiles in Malaysia's forensic DNA data bank. Group A, which represents young individuals, has the lowest level of knowledge when compared to Group B, which consists of adult informants. Most young people aged 18 to 40 responded negatively, but those aged 41 and above responded rationally despite having low or moderate retention. All informants in the public agreed that the government's attempts to educate and publish relevant information were insufficient and the second group of informants from RMP which includes of legal and enforcement professionals, likewise, concurred with the findings.

4.1 Implications for national security policy and the criminal justice system

When there is a lack of public support for the benefits and risks of preserving DNA profiles in forensic DNA data banks, people will respond by accepting or rejecting the system. Lack of knowledge and exposure will lead to a negative rather than a positive response, such as widespread rejection. The public will reject to volunteer to provide DNA to a forensic DNA bank. If left uncontrolled, this scenario will become more serious. It will have an impact on the government's efforts to combat crime using DNA identifying technology available in the forensic DNA database. As a result, the government must redouble its efforts to offer regular exposure and information to the public. The government's failure to take the public's awareness of the benefits and risks of preserving DNA profiles in forensic DNA data banks seriously has a significant impact on the criminal justice system. Without appropriate control measures, the crime rate will rise, and behaviours such as murder, rape, and others will become more common. By enhancing people's comprehension, it will indirectly enhance awareness, and more individuals will volunteer; if requested by authorities, there will be no coercion or rejection to contribute DNA. The government must employ digital technology that facilitates information access as an effective instrument to educate and promote public awareness of the importance of forensic data banks in society and the country. One of the major aims is to use 3D (3D) technology in crime scene reconstruction to boost scientific investigation and to improve service capabilities and efficiency through courses and training in the country and abroad. In addition, the Forensic Digital Unit should be authorised to serve as the primary investigator in cybercrime matters. One of RMP's goals is to construct a Cyber Sexual Forensic Laboratory in Bukit Aman, as well as build 14 Satellite Digital Forensic in addition (RMP, 2021).

4.2 Implications for the Image of Law enforcement

RMP is a law enforcement body tasked with maintaining public safety and enhancing the justice system. As a result, RMP's efforts to lower crime rates through D10 and D13 are among the best in Malaysian forensics. However, if the public's awareness remains low and there is a lack of disclosure about the benefits and risks of preserving DNA profiles in the forensic DNA data bank, the RMP's reputation and responsibility will suffer. People will make various demands on who should provide the transparency, if not the RMP. The forensics department and FDMM perform admirably at the crime scene, but if public comprehension and awareness remain low, the likelihood of negative criticism and rejection outweighs good acceptance. Over time, the lack of exposure and information will lead to a sceptical attitude among the community. Cases of widespread reluctance by the population to volunteer to provide DNA to the forensic DNA data bank will make it impossible for RMP to handle criminal cases correctly. It will bring criticism and charges against the RMP, which already has a poor reputation and credibility as a law enforcement authority. In this regard, the RMP and the Chemistry Department can work together to raise public knowledge of the benefits and risks of preserving DNA profiles in forensic DNA data banks. The agencies must go to the field to educate and give the people with the necessary information. It should be done on a regular basis by the RMP, particularly in terms of forensics and the significance of forensic DNA data banks in reducing criminal cases and improving the social justice system. Effective dissemination to the community is viewed as requiring the participation of all parties, with the RMP collaborating from the ground up to ensure that the information supplied is consistent and clear to all parties. RMP can begin efforts to

engage with the public sector at the federal and state levels by providing a series of briefings to civil officials throughout Malaysia on the value of forensic DNA data banks to community well-being. With these efforts, civil workers will be able to tell their families about the benefits and risks of storing DNA profiles in forensic DNA data banks. RMP, in partnership with the Chemistry Department, can also organise a "road show" with non-governmental organisations to raise community awareness. RMP's engagement with community leaders is also viewed as an initiative that can be regarded in conjunction with the Ministries of Housing and Local Government Development, Rural Affairs, and Family, Women and Community Development. The work of NGOs is viewed as critical in informing the community about the benefits and risks of preserving DNA profiles in forensic DNA data banks. It is because the community is apprehensive and believes that donating DNA will jeopardise individuals' rights and liberties. Due to a lack of exposure, it is also uncertain whether it is permissible within their religious beliefs.

There are some limitations to this study's findings about the benefits and risks of storing DNA profiles in Malaysia's forensic DNA data bank. The first drawback of the research is that the researcher collects data in the field solely using qualitative approach. This method is limited and not comprehensive, with no use of quantitative methods such as surveys to obtain more complete feedback. As a result, qualitative data obtained through interview methods cannot be supported by quantitative evidence, which may not accurately reflect the findings of comprehensive research. The second constraint is that the study was done in Shah Alam and Kuala Lumpur with just 15 informants among the public and law enforcement practitioners. The sample size in this small group is limited, and the study's findings solely reflect the opinions of the population in Kuala Lumpur and Shah Alam, Selangor. As a result, the study's findings cannot be generalised to the public's perception of the benefits and risks of storing DNA profiles in other areas of Malaysia. Based on the study's limitations, the researcher would like to give some recommendations for future study scope expansion, considering the methodology, total sample size, and diversity of factors. Future study on the benefits and risks of storing DNA profiles in forensic DNA data banks is likely to be increasingly broad, with the use of mixed mode methodologies that combine quantitative and qualitative approaches to achieve in-depth research results. Data gathering is likely to become more systematic with the use of survey methodologies, which will supplement data from qualitative interviews. It is hoped that in the future, the study's scope would be broadened to include a larger sample size and a wider study area. The types and categories of the public can also be seen to broaden the reach of future studies, allowing the study's findings to be applied to a wider range of the public. Similarly, the selection of informants among practitioners can be divided into groups that include informants who operate in related disciplines such as hospitals, as well as practitioners in law and enforcement and health sciences. In conclusion, this study successfully addressed the objective of assessing public awareness of the benefits and risks of storing DNA profiles in Malaysia's forensic DNA data bank. The study's findings indicate that the community's level of comprehension remains poor, according to informants among the public and practitioners. The study's findings from interviews demonstrate that most informants in the First FGD, which consisted of young people, were highly loud in their opinions. Adults, on the other hand, are perceived to be more sensible and mature in their assessment of the rewards and hazards. It is also consistent with the findings of interviews with informants from the Second FGD among practitioners, which demonstrate that public comprehension remains low due to the government's failure to disclose information. The FGD groups in this survey also agree that the government's efforts have been insufficient in terms of implementation. The study's findings clearly demonstrate a lack of knowledge, necessitating collaboration from all parties involved. The researcher made many recommendations for a comprehensive improvement effort in partnership with the RMP, the Department of Chemistry, and the appropriate ministries and agencies to ensure that information and publicity reach the grassroots and social media channels are excellent for distributing announcements to all levels of society. To ensure that Malaysian youth are literate in forensic science, forensic DNA education should be implemented at the beginning of school. Similarly, improvements in agencies or enactments that are clear in the use of forensic DNA in Syariah Courts must be updated,

and the establishment of a Syariah Forensic Laboratory is seen as increasing the public's confidence in the government's efforts to help the Muslim community accept the benefits and risks of storing DNA profiles in forensic DNA data banks with an open heart and confidence in Islamic procedures and procedures. It will lessen Muslim community rejection, particularly among those who remain sceptical about forensic DNA data banks based on Islamic beliefs.

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