

ORIGINAL ARTICLE

PAUSE©: THE CASE FOR DEVELOPING A PREMARITAL HIV TESTING AID FOR PRIMARY CARE SETTINGS IN MALAYSIA

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ABSTRACT

Since 2001, Malaysia has mandated premarital Human Immunodeficiency Virus (HIV) screening tests for prospective Muslim couples to curb HIV transmission. Pre-test counselling is essential prior to HIV testing. Nevertheless, a standardized format for delivering HIV pre-test counselling tailored to premarital clients has been lacking. This study aims to create the Premarital Counselling (PAUSE©) flipchart for couples undergoing mandatory premarital HIV testing in primary care settings and assess its comprehensibility and efficacy. Developed in accordance with literature reviews, local and international guidelines, PAUSE© content validity was ensured through an expert panel comprising Infectious Disease Specialists, Family Medicine Specialists with a particular focus on HIV, and HIV counsellors. The understandability of PAUSE© was evaluated among its end users—the clients—using the Patient Education Materials Assessment Tool - Print (PEMAT-P) questionnaire. To gauge effectiveness, pre- and post-test questionnaires assessing HIV knowledge were administered. Results indicated that clients' PEMAT-P scores for PAUSE© demonstrated strong understandability (scores >70%). PAUSE© exhibited preliminary effectiveness in enhancing overall HIV knowledge scores post-counselling (Z= -5.24, P <0.001). Therefore, PAUSE© serves as an easily comprehensible and valuable standardized counseling aid, supporting premarital HIV test counseling within primary care facilities.

Keywords: premarital, Human Immunodeficiency Virus, counselling, primary care

INTRODUCTION

HIV transmission is still an ongoing issue in Malaysia. The Ministry of Health reported a total of 80,428 people living with HIV in the year 2020(1). The latest report shows that sexual transmission remains the leading mode of HIV transmission in Malaysia. Therefore, screening for HIV with appropriate pre- and post-test counselling are a crucial part of HIV prevention efforts. Screening allows earlier detection of infection leading to appropriate treatment, and provides an opportunity to increase education and awareness.

The Malaysian Department of Islamic Development has made it compulsory for all Muslim couples to undergo provider-initiated, rather than voluntary HIV screening, prior to getting married(2). The ruling was made following the Johor Islamic Religious Council Fatwa meeting, which concluded that compulsory testing is intended to “protect religion, life, property, intellect, and lineage” of the Muslim community. A premarital provider-initiated HIV screening programme in Johor conducted during the 2002 - 2004 period where a total of 74210 clients were screened, detected 123 new cases of HIV (0.17%); which was a higher detection rate

compared to antenatal screening (0.05%)(3). This campaign also helped to improve public awareness regarding HIV and promote early detection of the disease(4). Subsequently, several states in Malaysia enforced similar mandatory ruling for all Muslim couples to undergo premarital HIV testing starting 2009. However, as Malaysia is a multi-ethnic country with a diverse range of spiritual and religious beliefs, the HIV screening test is voluntary but strongly recommended for non-Muslim couples who wish to get married.

The main objective of the screening program was to allow individuals, especially high-risk people to know their HIV status, and take further steps to prevent disease transmission, specifically for their future spouse and offspring. Couples had to undergo testing using a rapid diagnostic kit at their local public health clinic. If either of the couples were found to be HIV-positive from screening, they would be counselled and undergo confirmatory testing. Disclosure of the HIV status of an infected future partner was aimed at protecting the uninfected partner, although it also incurred the risk of breakdown of the relationship(4). When the HIV status of their potential partner is known, serodiscordant couples can plan for safer contraception or family

planning, and initiate antiretroviral therapy (ART) earlier to reduce risk of infecting their partner or their future children(5).

Pre-test counselling is still given to couples who undergo the mandatory premarital HIV screening. In general, pre-test counselling ensured that those tested were sufficiently informed prior to testing. During pre-test counselling, the couple would receive relevant information regarding HIV, the testing process and potential consequences if tested positive(6). This provided them with opportunities to correct any misconceptions about HIV. They would also undergo behavioural risk assessment and opportunistic education regarding methods of HIV transmission. Therefore, the pre-test counselling helped to prepare the couple for any outcome of testing.

Multiple guidelines from WHO between 2012 and 2019 mention that pre and post-test HIV counselling have a strong HIV prevention benefit in preventing HIV transmission(5,7-9). Pre-test counselling also provided a valuable opportunity for health education about safer sex, harm reduction, accurate information about the test and the implications of a positive or negative result(5,8,9). The 2019 WHO Consolidated Guideline on HIV testing services, stated that providing intensive information about HIV and lengthy pre-test counselling session of 20 to 60 minutes was no longer needed. This was because lengthy counselling did not significantly result in change of risk behaviours or improvement of HIV knowledge compared to a brief HIV-specific information counselling(7). The WHO recommended using concise pre-test information and counselling resources which have been contextualised to the local setting such as posters, brochures, websites and short video clips shown in waiting rooms. The pre-test information and counselling messages should provide the latest information about the benefits of HIV treatment, prevention and care service(7).

For patients who are at risk of HIV infection, pre-test discussion is an essential part of post-test management. Face-to-face counselling can be one of the most effective means of facing the pressure of the test-taking and result-disclosure process(10). Any potential concern about HIV tests such as presence of HIV-related symptoms and possibility of a positive result could be minimised with good pre-test counselling. It is an important step to prepare clients for a positive result, and to further reinforce prevention messages(5)(9). Unfortunately, there is a lack of both standardisation of the flow in performing HIV testing and delivery of standard counselling content or information among centres that offer the HIV testing service at public primary healthcare centres (a.k.a Klinik Kesihatan) in Malaysia. Medical assistants and nurses are primarily responsible for conducting premarital HIV testing in primary care settings. On occasion,

medical officers or doctors may step in to provide counselling if needed.

Unfortunately, standardised training or guidance was lacking or inadequate for primary healthcare professionals on how to conduct the pre-test counselling. Furthermore, due to human resource limitations, it was difficult to conduct training on pre-test counselling for primary healthcare professionals. Most healthcare professionals did not adhere to WHO/Joint United Nations Programme on HIV/AIDS (UNAIDS) guidelines during the pre-test HIV counselling because they lack awareness about the availability of the guidelines(11). Without a standardised counselling aid or checklist, pre-test counselling was time-consuming(11). Providing a standardised counselling aid will help to guide junior healthcare professionals throughout the counselling process, and ensure that no important information is left out.

Health literacy is defined as the ability to find, understand, and use health information and services needed for everyday health decision-making. The 2019 National Health and Morbidity survey reported that 1 in 3 Malaysians have poor health literacy(12). Low health literacy among patients will cause them to have difficulty in understanding the explanation of the screening process, prevention, diagnosis, and treatment of the illness(11)(13). Therefore, the design of a counselling aid should be simple to aid understanding of the information.

To date, there is no pre-test counselling aid used to deliver standardised and focused HIV counselling for premarital couples by primary healthcare professionals i.e., general practitioners, medical assistants, community nurses or counsellors at the public primary care facilities under MOH. Standard operating procedure to conduct HIV rapid test screening is available, but there is no standard training or counselling manual or counselling aid provided to our general practitioners, medical assistants, community nurses or counsellors to conduct the counselling for premarital clients. Therefore, a new counselling aid targeting a specific group of patients (i.e., premarital clients) needs to be developed to enable the delivery of specific and focused counselling by primary health care workers which would meet clients or patients' need(11). The purpose of the study is to design a flipchart counselling tool based on local guideline which is "Manual Pengurusan HIV di Peringkat Penjagaan Kesihatan Primer (PPHIV), Edisi 3, 2015" and WHO guidelines targeting premarital clients undergoing mandatory HIV testing in primary care and to determine its understandability and effectiveness for use in primary care setting.

METHODOLOGY

Phase 1: Development of The Premarital Human Immunodeficiency Virus (HIV) Counselling Aid (PAUSE©) Flipchart

The researchers decided to develop the flip chart in the Malay language, as almost all clients for premarital HIV screening were Muslim Malay couples. Malay is also the national language for Malaysia. The preliminary contents of the flipchart were developed based on the WHO guidelines on pre-test HIV counselling, literature review and content expertise from two Family Medicine Specialists (FMSs) who were involved in the management of HIV patients at public primary care clinics. The main components of the flip chart included an overview of HIV and AIDS, modes of HIV transmission, the HIV testing process, benefits and risks of HIV testing, the implication of both positive and negative results, prevention, and confidentiality. Illustrations (Appendix 1) were used to facilitate understanding and the layout was designed to provide a visually pleasing experience for users.

Content validation of the PAUSE© flipchart.

A mock version of the flipchart was printed out and distributed to a panel of experts for content validation. The experts consisted of two infectious disease (ID) consultants, four FMSs who were involved in managing HIV cases, and 2 trained HIV counsellors. All the experts have a minimum 5 years of experience in their own specialty. The researcher individually briefed the respective experts in person regarding the objective of developing a flipchart, and invited their opinions on information that needed to be included during pre-test HIV counselling (based on guidelines). Experts provided verbal comments during the interview session, on the adequacy and appropriateness of the information, and its presentation style from the reader's perspective, assessing the flow and ease of understanding as well as simplicity of language. This was done via video call (due to Covid 19 pandemic) and face-to-face interviews.

Face validation of the PAUSE© flipchart.

Face validation of the PAUSE© flipchart was done among 6 Malay clients and 6 healthcare professionals. Clients were couples who came to the clinic for pre-marital HIV testing. The healthcare professionals were nurses and medical assistants who were involved in the counselling process for premarital HIV testing at the primary care clinic. These clients and healthcare professionals were conveniently approached in the clinic to provide feedback on the face validity of the mock-up. The flipchart was shown to these

clients and healthcare professionals. They were asked to review the wording of the flipchart and to identify potentially difficult terms and the appropriateness of the illustrations. Their comments were used to provide feedback for revision and improvement of the PAUSE© flipchart.

Revisions were made to the flipchart contents based on the feedback obtained from the content and face validation process. The final version of the PAUSE© flipchart was then printed out in the form of a desktop calendar. The pages of the desktop calendar allowed the healthcare professionals who did the counselling to view the similar pages shown to clients, as well as additional explanatory notes, to prompt them on important points during the counselling process.

Phase 2: Assessing the understandability and preliminary effectiveness of the PAUSE© flipchart in a clinical setting

Phase 2 was a quasi-experimental single arm pre- and post-test study to determine the understandability and preliminary effectiveness of the PAUSE© flipchart in the primary care setting. This phase involved clients who were couples who attended the clinic for pre-test counselling prior to the mandatory premarital HIV testing.

Pilot testing was conducted on 30 clients prior to the actual study. Based on the pilot study, the mean score for the HIV knowledge test was 7.23 (SD = 4.97). The sample size was calculated to conduct a paired t-test analysis based on the pilot test results. The minimum sample size required was N=30. To account for a possible 20% non-response rate, this was increased to N=38.

The clients were recruited consecutively based on the clinic appointment list for premarital HIV testing. The clients were approached upon registration at the clinic and invited to participate in the study. Written and informed consent were obtained from them. They were required to complete a self-administered data collection form consisting of sociodemographic information and the HIV Knowledge Pre-test Questionnaire. The clients then received counselling for the premarital HIV test using the PAUSE© flipchart. Following the counselling session, the same respondent completed the HIV Knowledge Post-test Questionnaire and the Malay version of the PEMAT-P Understandability subscale Questionnaire. Their responses were collected immediately upon completion by the researcher. The researcher also documented the time taken for counselling using the PAUSE© flipchart.

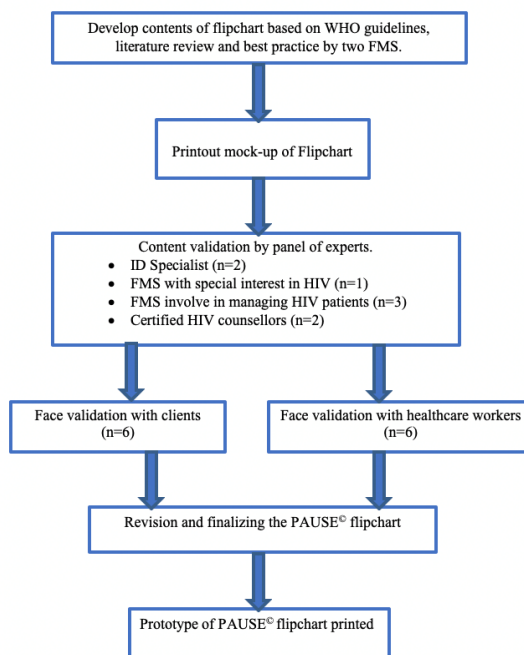


Figure 1: Phase 1 Study flow chart for PAUSE© design

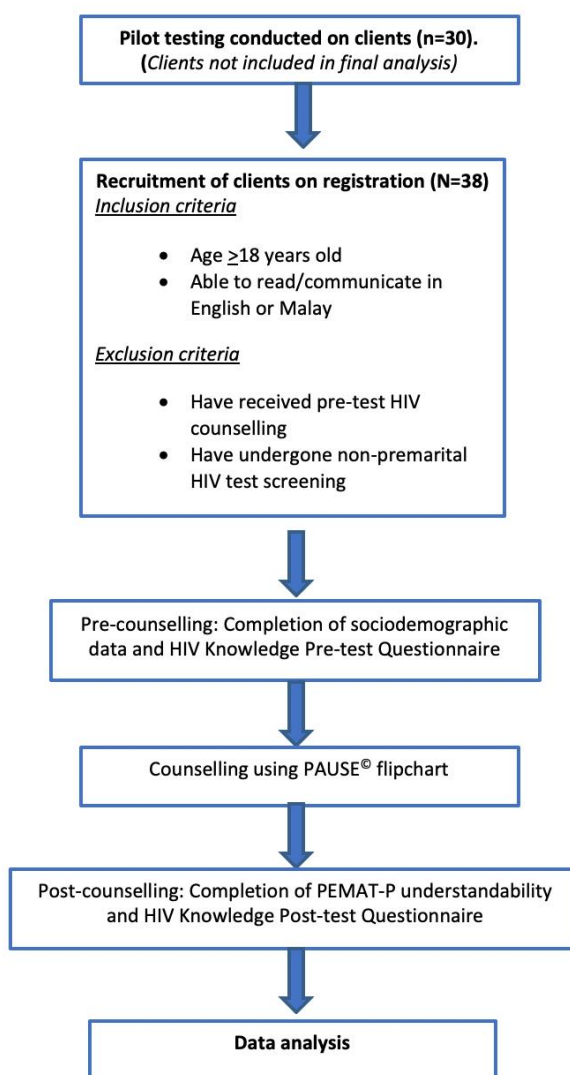


Figure 2: Phase 2 Study flow chart for testing of PAUSE© by clients

Study Tools

The HIV Knowledge Questionnaire was adapted from an original questionnaire by Nyamathi et al(14). This questionnaire was used because it assessed the domains based on all the information provided in the flipchart. There were no published local questionnaires which assessed similar domains. This was a questionnaire consisting of 21 items with dichotomous responses. The questionnaire had two subscales, which were Cognitive HIV Knowledge and HIV Transmission Knowledge. The questionnaire underwent content validation by 2 academic Family Medicine Specialists. Some terminologies in the questionnaire were revised to suit the local context and current updated knowledge regarding HIV infection. The questionnaire then underwent back-to-back translation by bilingual translators to produce a conceptually equivalent Malay version. The Cronbach alpha coefficient was 0.678 for the Cognitive HIV knowledge subscale of the Malay version questionnaire, indicating fair internal consistency. The Cronbach alpha coefficient was 0.922 for the HIV Transmission Knowledge subscale of the Malay version questionnaire, indicating good internal consistency for this subscale.

The Malay version of the Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P) questionnaire was used in this study. The PEMAT-P was originally developed in English by Schoemaker, Wolf & Brach(15). It consisted of an Understandability subscale and the Actionability subscale. For this study, only the Understandability subscale was used. A patient educational material with a PEMAT-P score of more than 70% reflected a good performance or understandability(16).

The Malay version of the PEMAT was validated by Wong and colleagues(17). The Understandability subscale of the Malay version had good internal consistency reliability(18). Understandability was defined as “patient education materials which are understandable when consumers of diverse backgrounds and varying levels of health literacy can process and explain key message”(16). PEMAT scores ranged from 0-100%. The higher the score, the more understandable the material(16). Consent for use of all questionnaires were granted by the original authors.

Statistical analysis

The data collected were analysed using Statistical Package for the Social Sciences (SPSS) version 26. Sociodemographic data were analysed

descriptively in the tables and figures. Continuous data that were normally distributed were presented as means and standard deviation, while those with skewed distributions were presented as medians and interquartile ranges. Categorical data were presented as frequencies and percentages. Wilcoxon signed rank test was used to determine if changes from pre-test and post-test knowledge scores were significant.

Ethical consideration

Ethical approval was obtained from the Medical Research and Ethics Committee University Kebangsaan Malaysia (FF-2020-1770) and the Malaysian Ministry of Health Medical Research and Ethics Committee (NMRR-20-1118-54130), as set out by the Helsinki Declaration. Approval was also obtained from the Selangor State Department and Gombak District Health Office prior to the commencement of data collection. Datasets were de-identified to maintain anonymity and data confidentiality.

RESULTS

Sociodemographic characteristic of clients

A total of 38 clients participated in the Phase 2 study with almost equal gender representation. The mean age of clients was 29.5 (SD 6.15) years. In terms of level of education, the majority received secondary education. All clients had never received a premarital HIV test counselling before.

PEMAT Understandability scores

Total PEMAT-P score for PAUSE© showed good understandability from clients. The median score for clients was 100 (IQR 0.0) (Range: 82.3- 100). The time taken by HCWs to counsel clients using the PAUSE© flipchart ranged from 7 to 10 minutes.

HIV Knowledge Score

The Wilcoxon Signed-Rank test indicated that the post-test median score for Cognitive HIV knowledge was statistically significantly higher than the median pre-test score ($Z = -5.10$, $p < 0.001$). This shows improvement in HIV Cognitive knowledge among clients after counselling using the PAUSE© flipchart. Similar improvement was noted for the HIV Transmission Knowledge scores for pre and post-test. The median score post-test was statistically significantly higher than the pre-test score ($Z = -4.35$, $p < 0.001$). Hence the overall score for HIV knowledge also improved significantly ($Z = -5.24$, $P < 0.001$).

Table 1: Sociodemographic characteristics of clients counselled using PAUSE© (N = 38)

Variables	Frequency (%)
Age group (years)	
• 19-29	24 (63.2)
• 30-39	11 (28.9)
• 40-49	2 (5.3)
• 50-59	1 (2.6)
Gender	
• Male	20 (52.6)
• Female	18 (47.4)
Race	
• Malay	37 (97.4)
• Others	1 (2.6)
Education background	
• Primary education	1 (2.6)
• Secondary education	14 (36.8)
• Tertiary education	23 (60.5)

Table 2: HIV knowledge pre-test and post-test median score difference.

Variables	Pre-test score (median)(IQR)	Post-test score (median)(IQR)	z value	p value
Cognitive HIV score	6 (4)	9 (2)	5.10	<0.001
HIV transmission score	9 (4)	11 (0)	4.35	<0.001
Total HIV knowledge score	15.5 (7)	20 (2)	5.41	<0.001

Table 3A: Cognitive HIV knowledge pre-test and post-test scores after counselling with PAUSE©

Cognitive HIV knowledge	Correct responses	
	Pre-test n (%)	Post-test n (%)
HIV can reduce body’s natural protection	25 (65.8)	37 (97.4)
HIV can damage the brain	9 (23.7)	24 (63.2)
HIV is an infectious disease caused by virus	28 (73.7)	35 (92.1)
Teenagers cannot get HIV	35 (92.1)	37 (97.4)
A person can be infected with HIV and not have the disease	20 (56.6)	33 (86.8)
Looking at a person is enough to tell if they have HIV	25 (65.8)	37 (97.4)
Person with HIV can look and feel well	25 (65.8)	35 (92.1)
Pregnant woman may give the virus to her baby	27 (71.1)	38 (100)
There is vaccine available to protect against HIV infection	15 (39.5)	31 (81.6)
There is no cure for HIV infection at the present	27 (71.1)	34 (89.5)
Total cognitive knowledge score (Median, IQR)	6 (4)	9 (2)

Table 3B: HIV Transmission knowledge pre-test and post-test scores after counselling with PAUSE®

HIV transmission knowledge	Correct responses	
	Pre-test n (%)	Post-test n (%)
<i>One can get HIV by:</i>		
Living near home or hospital for HIV patient	32 (84.2)	37 (97.4)
Working with someone with HIV	32 (84.2)	37 (97.4)
Eating in restaurant where the cook has HIV	25 (65.8)	38 (100)
Shaking hands, touching, or kissing someone on the cheek	30 (78.9)	37 (97.4)
Sharing plates, forks, or glasses with someone who has HIV	20 (52.6)	37 (97.4)
Using public toilets	30 (78.9)	35 (92.1)
Sharing needles for drug use with someone who has HIV	32 (84.2)	36 (94.7)
Being near someone who coughs or sneezes and has HIV	26 (68.4)	34 (89.5)
Attending school with a child who has HIV	32 (84.2)	37 (97.4)
Mosquitoes or other insects	27 (71.1)	34 (89.5)
Having sex with a person who has HIV	33 (86.8)	36 (94.7)
Total HIV transmission knowledge score (Median, IQR)	9 (4)	11 (6)
Total HIV cognitive and transmission knowledge score (Median, IQR)	15.5 (7)	20 (2)

DISCUSSION

PAUSE® is a newly developed abbreviated tool for pre-test counselling of clients requiring a premarital HIV test in the Malaysian primary care setting. PAUSE® provided delivery of consistent and standardised educational material for clients undergoing mandatory premarital HIV screening in Malaysia. It was developed by and for specialists and healthcare professionals who were end users of the flipchart. It was created based on the latest information about HIV, prevention and risk reduction, benefit of HIV testing, the meaning of HIV-positive and HIV-negative diagnosis, benefit of early ART, importance of disclosure and partner screening and confidentiality of the test result, as recommended by WHO. Pre-test HIV information and counselling should be monitored routinely to ensure it follows the latest evidence and good practise(7).

To the best of our knowledge, there were no standardised educational materials for pre-test

HIV counselling specifically designed for premarital couples at the time of this study. This made it difficult for any comparison or discussion. However, based on our observation of the local practice in several primary care centres, there was poor adherence to the WHO standard guideline. Clients received inconsistent and inadequate information about HIV/AIDS prior to the screening test. According to WHO, concise information and counselling of 15 minutes or less is recommended for HIV pre-test counselling(7). Counselling using PAUSE® ranged from seven to ten minutes, which is in accordance to the WHO guidelines. The ability to deliver a brief, effective and informative counselling session consistently in a busy public primary care setting would be beneficial for both the health care workers and the clients.

When the policy for mandatory pre-marital HIV testing was introduced, there were concerns from various parties regarding the quality of information delivered to clients and their level of

understanding(4)(19). PAUSE© has the potential to improve clients' understanding and knowledge regarding HIV and transmission during the pre-test counselling, especially for those with poor health literacy(2). The PAUSE© flipchart demonstrated good understandability among clients. Therefore, it was suitable to be used in premarital HIV screening clinic sessions in primary care with clients from multiple backgrounds and education levels.

PAUSE© flipchart facilitated the task of pre-test counselling by various healthcare professionals including nurses, assistant medical officers, and doctors, even for those who may not have had much training prior to counselling the clients. The reverse page for health care professionals provided a quick reference guide during the counselling session. Technically, it allows the health care worker to deliver the counselling session with ease knowing that the client is seeing the same page as the counsellor. It was also beneficial to guide junior healthcare professionals who have less experience and skills in delivering pre-test counselling.

According to research by the National Institute of Health Malaysia, based on the National Health and Morbidity Survey (NHMS) 2020 on HIV knowledge, 86% of young adults aged 15 to 24 years had inadequate HIV knowledge. Comprehensive HIV/AIDS knowledge is essential for the prevention, control, and treatment of the disease and reduces the stigma towards people living with HIV(20). In our study, the results showed a significant gain in HIV cognitive and transmission knowledge, as well as overall HIV knowledge after counselling using PAUSE©. Hence, PAUSE© has shown preliminary effectiveness in improving clients' understanding and knowledge regarding HIV and its modes of transmission.

However, this study was limited to a single-centre and small sample size. The convenience sampling strategy limited the ability to generalise the result of the study. PAUSE© should be tested in more primary care facilities including private and government facilities. Apart from that, PAUSE© was only available in Malay language. Although the initial intention of the study was to cater for the mandatory testing policy for Muslim couples, of which majority were Malays, there is also a need for counselling aids for clients from other ethnic backgrounds. Hence, future studies should focus on the translation of PAUSE© into other languages e.g., English, Mandarin, Tamil, and even East Malaysian dialects to cater for Malaysia's multi-ethnic society. A digital format of PAUSE© could be developed as a supplementary tool for HIV pre-test counselling guides currently in use across the country.

CONCLUSION

PAUSE© is a standard education material designed for premarital clients by specialists and healthcare professionals for pre-test HIV counselling, specifically for use in primary care settings during premarital HIV testing in Malaysia. PAUSE© allows delivery of standardised and current information regarding HIV effectively by healthcare professionals to clients with improvement in HIV cognition and transmission knowledge scores.

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COMPETING INTEREST

The authors have no conflict of interest to declare.

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REFERENCES

1. Ministry of Health Malaysia. Global AIDS Monitoring Country Progress Report to HIV/AIDS Epidemic. Malaysia HIV/AIDS Prog Rep. 2021;4(1):1-23.
2. Barmania S. Malaysia makes progress against HIV, but challenges remain. *Lancet* [Internet]. 2013;381(9883):2070-1. Available from: [http://dx.doi.org/10.1016/S0140-6736\(13\)61229-5](http://dx.doi.org/10.1016/S0140-6736(13)61229-5)
3. Khebir BV, Adam MA, Daud AR, Shahrom CMD. Premarital HIV screening in Johor - (2002-2004). *Med J Malaysia*. 2007;62(1):19-22.
4. Barmania S, Aljunid SM. Premarital HIV testing in Malaysia: a qualitative exploratory study on the views of major stakeholders involved in HIV prevention. *BMC Int Health Hum Rights*. 2017;17(1):1-10.
5. World Health Organization. World Health Organization. (2012). Guidance on couples HIV testing and counselling including antiretroviral therapy for treatment and prevention in serodiscordant couples: recommendations for a public health approach. World Health Organization.

- [Internet]. 2012. Available from: <https://apps.who.int/iris/handle/10665/44646>
6. Njeru MK, Blystad A, Shayo EH, Nyamongo IK, Fylkesnes K. Practicing provider-initiated HIV testing in high prevalence settings: Consent concerns and missed preventive opportunities. *BMC Health Serv Res.* 2011;11:1-14.
 7. World Health Organization. Consolidated Guidelines on Hiv Testing Services 2019 [Internet]. 2019. Available from: <https://www.who.int/publications/i/item/978-92-4-155058-1>
 8. World Health Organization. HIV Prevention, Diagnosis, Treatment and Care for Key Populations (2016 Update). *World Heal Organ.* 2016;155.
 9. Chippindale S, French L. ABC of AIDS HIV counselling and the psychosocial management of patients with HIV or AIDS What is HIV counselling? When is HIV counselling necessary? Psychological responses to an HIV positive result. *Bmj.* 2011;322:1533-5.
 10. Spielberg F, Kurth A, Gorbach PM, Goldbaum G. Moving from apprehension to action: HIV counseling and testing preferences in three at-risk populations. *AIDS Educ Prev.* 2001;13(6):524-40.
 11. Manirankunda L, Loos J, Debackaere P, Nöstlinger C. "It is not easy": Challenges for provider-initiated HIV testing and counseling in Flanders, Belgium. *AIDS Educ Prev.* 2012;24(5):456-68.
 12. National Health and Morbidity Survey 2019. National Health Morbidity Survey 2019 Technical Report: Healthcare Demand. Vol. 2, National Institutes of Health,. 2020. 1-247 p.
 13. Mancuso JM. Health literacy: A concept/dimensional analysis. *Nurs Heal Sci.* 2008;10(3):248-55.
 14. Nyamathi A, Vatsa M, Khakha DC, McNeese-Smith D, Leake B, Fahey JL. HIV Knowledge Improvement Among Nurses in India: Using a Train-the-Trainer Program. *J Assoc Nurses AIDS Care* [Internet]. 2008;19(6):443-9. Available from: <http://dx.doi.org/10.1016/j.jana.2008.06.001>
 15. Shoemaker SJ, Wolf MS, Brach C. Development of the Patient Education Materials Assessment Tool (PEMAT): A new measure of understandability and actionability for print and audiovisual patient information. *Patient Educ Couns* [Internet]. 2014;96(3):395-403. Available from: <http://dx.doi.org/10.1016/j.pec.2014.05.027>
 16. Shoemaker, J. S., Wolf, M. S. & Brach C. The Patient Education Materials Assessment Tool (PEMAT) and User's Guide. 2017;1-5. Available from: <https://www.ahrq.gov/professionals/prevention-chronic-care/improve/self-mgmt/pemat/index.html>
 17. Wong Siong Ting Norkhafizah Saddki Wan Nor Arifin Noraini Mohamad Nurhanis Syazni Roslan. Alat Penilaian Bahan Pendidikan Pesakit , PEMAT (M) dan Panduan Pengguna.
 18. Wong ST, Saddki N, Campus H, Arifin WN, Resilience P. Internal Consistency Reliability of the Bahasa Malaysia Version of Patient Internal Consistency Reliability of the Bahasa Malaysia. 2021;83(December):99.
 19. Khalib AM. Forced HIV testing policy untenable [Internet]. *Malaysiakini.* 2008 [cited 2022 Feb 6]. Available from: <https://www.malaysiakini.com/letters/33983>
 20. IPH, NIH M. Institute for Public Health (IPH) 2021. National Health and Morbidity Survey (NHMS) 2020: Communicable Diseases. Volume 1. 2020. 280 pages. Vol. I. 2020.

Appendix 1

SAMPLE ILLUSTRATIONS FROM PAUSE© FLIPCHART

Apakah AIDS?

Acquired Immune Deficiency Syndrome

Fasa terakhir jangkitan HIV

Peringkat awal HIV TIADA GEJALA AIDS



- Jangkitan paru-paru
- Susut berat badan mendadak
- Kanser kulit
- Jangkitan kulat di mulut
- Jangkitan otak

POSITIF HIV TIDAK BERMAKNA ANDA MENGHIDAP AIDS

Bagaimana HIV berjangkit?

Melalui bendalir badan

Golongan berisiko



- Hubungan seks tanpa perlindungan (lelaki dan perempuan/sesama jantina)
- Perkongsian jarum dikalangan penagih dadah
- Ibu mengandung (menghidap HIV) kepada anak kandungannya
- Penerima darah/organ tercemar virus HIV

Mengapa saya perlu menjalani ujian HIV pra-perkahwinan?

Melahirkan anak yang sihat dan bebas HIV

Membina keluarga yang sihat

Membina rumah tangga yang bahagia

HIV boleh dikawal dengan ubat jika dikesan awal



Bolehkan saya berkahwin jika keputusan ujian saya positif ?

Penghidap HIV boleh berkahwin dan mendapat zuriat

Pesakit perlu mendapatkan rawatan awal di Klinik Kesihatan dan hospital

