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PERSEPSI DAN PENERIMAAN MASYARAKAT NEGERI PAHANG TERHADAP NORMA BAHARU KESAN COVID-19

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ABSTRAK

Norma baharu dijadikan sebagai budaya serta amalan masyarakat bagi memutuskan rantaian jangkitan COVID-19. Sehubungan itu, tinjauan ini dilakukan untuk mengenalpasti persepsi dan penerimaan masyarakat di negeri Pahang terhadap pelaksanaan norma baharu kesan daripada COVID-19. Aspek penerimaan masyarakat yang dilihat adalah amalan norma baharu iaitu amal 3W (Wash, Wear dan Warn) dan elak 3S (elak tempat yang sesak, tempat yang sempit dan tertutup dan bersempang dekat-dekat). Tinjauan ini menggunakan kaedah keratan rentas secara atas talian. Kaedah Google Form digunakan bermula 28 April sehingga 12 Mei 2020 iaitu dalam tempoh Perintah Kawalan Pergerakan (PKP) dan Perintah Kawalan Pergerakan Bersyarat (PKPB). Tinjauan ini melibatkan sebanyak 2,213 responden di negeri Pahang. Terdapat tiga (3) bahagian dalam instrumen tinjauan tersebut iaitu demografi responden (5 item), persepsi (3 item) serta penerimaan dari aspek amalkan 3W (12 item) dan elakkan 3S (5 item). Hasil tinjauan mendapati majoriti masyarakat bersetuju untuk menjalani norma baharu dalam kehidupan seharian mereka (95.34%) dan bersetuju untuk mematuhi norma baharu (99.63%). Majoriti masyarakat menunjukkan penerimaan yang tinggi untuk patuhi jarak fizikal 1 meter (99.45%), 99.27% tidak mengadakan perhimpunan secara besar-besaran, 99.23% elak berada di tempat yang sempit dan tertutup, 98.92% keluar rumah jika perlu sahaja, kerap basuh tangan dengan air dan sabun (98.60%), 98.41% bersetuju untuk mengamalkan etika batuk dan bersin yang betul, 97.65% segera mendapatkan rawatan jika bergejala dan 96.70% memakai pelitup muka. Kesimpulannya, majoriti masyarakat di negeri Pahang mempunyai persepsi dan penerimaan yang positif terhadap norma baharu dalam usaha memutuskan rantaian jangkitan COVID-19 daripada terus merebak.

Kata kunci: Penerimaan, Elak 3S, Rantaian jangkitan COVID-19, Norma Baharu, Persepsi, Amal 3W

ABSTRACT

To break the COVID-19 infection chain, the new norm has become a societal culture and custom. Thus, this study was done to investigate the public's perception and acceptability of the new COVID-19 guideline (SOP) in the state of Pahang, Malaysia. The purpose of this study is to investigate the public's perception and acceptance of the new guideline in Pahang State. The acceptance aspects of the society that is being viewed are practice 3W (Wash, Wear and Warn) and avoid 3C areas (crowded places, confined spaces and close conservation). A cross-sectional online survey of 2,213 respondents in Pahang was conducted between 28th April 2020 until 12th May 2020 using Google Form within the Movement Control Order (MCO) and Conditional Movement Control Order (CMCO). There were three (3) sections in the survey instruments; respondent's demographic (5 items), perception (3 items), and acceptance in terms of practices 3W (12 items) and avoid 3C (5 items). The findings of this study had found that majority of the society agreed to practice the new norm in their daily life (95.34%) and agreed to oblige the new norm (99.63%). Majority of the society have shown high acceptance to oblige the 1 metre social distancing (99.45%), 99.27% have not organized mass gathering, 99.23% avoid confined space areas, stay at home and only go out for essential reasons (98.92%), frequent hand washing using soaps and water (98.60%), 98.41% agreed to practice the correct coughing and sneezing ethics, 97.65% seeking immediate treatment for any symptoms and 96.70% use face mask. In conclusion, majority of the Pahang state society has positive perception and high acceptance on the new norm in the efforts of breaking COVID-19 infection chain.

Keywords: *Acceptance, Avoid 3C, COVID-19 infection chain, New norm, Perception, Practice 3W*

1. PENGENALAN

Dunia dikejutkan dengan penyakit coronavirus 2019 (COVID-19) pada penghujung tahun 2019. Penyakit ini bermula di Wuhan, China. Penyakit COVID-19 boleh berjangkit dan tersebar dalam waktu yang singkat serta menyebabkan kematian jika langkah pencegahan dan rawatan awal tidak dilakukan dengan segera. Keseriusan jangkitan penyakit ini telah menyebabkan pemimpin-pemimpin negara mengambil langkah tegas dan segera bagi mengekang jaringan jangkitan penyakit ini. Malaysia tidak

terkecuali dalam mengambil tindakan yang tegas dan segera tersebut. Malaysia adalah salah sebuah negara yang dilaporkan antara negara yang terbaik di dunia dalam usaha memerangi COVID-19. Kementerian Kesihatan Malaysia (KKM) melalui laman media sosial *Facebook* rasminya pada 14 Julai 2020, melaporkan dengan jumlah kes dunia melebihi 12 juta, Amerika Syarikat, Brazil, India dan Rusia mempunyai jumlah kes antara 700,000 hingga 3 juta kes. Peratusan bagi keempat-empat negara ini adalah 52.14% daripada jumlah keseluruhan. Kadar kesembuhan dunia menunjukkan peningkatan iaitu 56.52% dan Malaysia berada di kedudukan ke-15 daripada 53 negara yang mempunyai kadar kesembuhan melebihi 90.00% (Kementerian Kesihatan Malaysia, 2020).

Kes COVID-19 pertama di Malaysia dikesan pada 25 Januari 2020 yang melibatkan tiga pelancong dari China (Reuters, 2020). Jumlah kes terus meningkat sebelum dua kes kematian pertama negara dicatatkan pada 17 Mac (New Strait Times, 2020). Melihat kepada keseriusan penyakit ini dan perebakan yang cepat hingga menyebabkan kematian, Kerajaan Malaysia atas nasihat KKM telah menguatkuasakan Perintah Kawalan Pergerakan (PKP) yang dilaksanakan di bawah Akta Pencegahan dan Pengawalan Penyakit Berjangkit 1988 dan Akta Polis 1967 mengikut beberapa fasa iaitu Fasa Pertama pada 18 hingga 31 Mac 2020, Fasa Kedua pada 1 hingga 14 April 2020, Fasa Ketiga pada 15 hingga 28 April 2020 dan Fasa Keempat pada 29 April hingga 12 Mei 2020 sebagai usaha untuk menangani penularan jangkitan COVID-19 serta untuk menyedarkan rakyat Malaysia untuk segera bertindak dan mengambil langkah-langkah pencegahan bersama agensi-agensi Kerajaan yang berkaitan. Ketua Pengarah Kesihatan, Tan Sri Dato' Dr. Nor Hisham Abdullah menyatakan matlamat utama dalam PKP adalah untuk mengurangkan kes COVID-19. Jika rakyat Malaysia patuh kepada perintah tersebut, maka kita akan dapat mengurangkan kes jangkitan dan pihak hospital akan dapat memberikan perkhidmatan terbaik untuk merawat pesakit COVID-19 (Astro AWANI, 2020).

Pada 13 Mei hingga 9 Jun 2020, Perintah Kawalan Pergerakan Bersyarat (PKPB) pula telah diperkenalkan memandangkan penurunan kes yang terkawal. Ketua Pengarah Kesihatan Tan Sri Dato' Dr. Noor Hisham Abdullah sekali lagi menjelaskan, biarpun kerajaan melaksanakan PKPB, rakyat tetap perlu patuh kepada prosedur operasi standard (SOP) yang ditetapkan (Rafidah et al., 2020).

Seterusnya Perintah Kawalan Pergerakan Pemulihan (PKPP) dijalankan bermula 10 Jun hingga 31 Ogos 2020 sebagai usaha untuk membantu pemulihan ekonomi negara yang terjejas akibat penularan wabak COVID-19 di samping rakyat mengamalkan norma baharu dalam kehidupan seharian. Menurut YAB Tan Sri Dato' Haji Muhyiddin Bin Haji Mohd Yassin, Perdana Menteri Malaysia, dalam tempoh PKPP ini, kerajaan memberikan lebih banyak kelonggaran kepada rakyat dengan syarat rakyat sendiri mengambil tanggungjawab secara serius untuk mengamalkan kebiasaan baharu kehidupan dan mematuhi semua SOP yang ditetapkan oleh kerajaan. Ini bermakna, tanggungjawab untuk memastikan wabak COVID-19 kekal terkawal berada di tangan rakyat sendiri (Pejabat Perdana Menteri Malaysia, 2020).

Menurut Maragakis (2020), selagi vaksin COVID-19 belum berjaya dihasilkan, selagi itulah kita akan berhadapan dengan risiko jangkitan. Kita perlu menyesuaikan diri dengan “norma baharu”, yang bermaksud cara hidup baru dalam menjalani kehidupan, pekerjaan dan berinteraksi dengan orang lain. Amalan norma baharu seperti jarak fizikal, mencuci tangan, memakai pelitup muka perlu diamalkan. Pandemik COVID-19 telah mengubah cara kita bekerja, berkomunikasi, dan bersosial secara drastik dan menyebabkan kita berhadapan dengan cabaran untuk membuat perubahan yang ketara dalam beberapa hari dalam kehidupan harian (Li et al., 2020). Norma baharu harus dapat mengubah tingkah laku masyarakat daripada sifat kebiasaan kepada norma baharu yang perlu diadaptasi. Mungkin sukar pada peringkat awalnya tetapi seperti kata bidalan, alah bisa tegal biasa. Penyesuaian dalam mengadaptasi norma baharu ini bukan sahaja boleh membantu mencegah jangkitan COVID-19 tetapi juga penyakit berjangkit lain yang tentunya boleh menjadikan rakyat lebih sihat, bersih, dan kuat (Saravanan, 2020).

Seperti penyakit influenza dan SARS-CoV-2, pencegahan yang standard sahaja bagi penyakit COVID-19 tidak dapat menghalang penyebaran kuman. Oleh itu, langkah pencegahan tambahan perlu dilakukan seperti menjaga jarak minimum 3 kaki daripada pesakit (disarankan penggunaan satu bilik), memakai pelitup muka (ketika berada dalam jarak 6-10 kaki untuk mengelakkan risiko tinggi berlaku jangkitan), dan mengekalkan penjagaan kebersihan pernafasan atau etika batuk yang betul (Siegel et al., 2007; Lynch et al., 2020). Memandangkan risiko penularan yang sangat tinggi dalam komuniti dan terutamanya disebarkan melalui titisan pernafasan, rekomendasi kawalan jangkitan ini dapat diperluaskan lagi dari *setting* hospital kepada *setting* orang awam dalam melaksanakan

aktiviti harian bagi mengurangkan penyebaran COVID-19 setelah penarikan balik *lockdown* (Kang, 2020).

Justeru, masyarakat perlu mengubah tingkah laku mereka kepada norma baharu bagi membendung penularan jangkitan COVID-19. Norma baharu yang disarankan oleh kerajaan adalah elak 3S dan amal 3W. Elakkan 3S iaitu elakkan kawasan yang sesak (*Crowded places*), elakkan kawasan yang sempit (*Confined spaces*) dan elak sembang atau bersembang dengan jarak yang dekat (*Close conversation*). Manakala amalkan 3W iaitu kerap mencuci tangan dengan air dan sabun (*Wash*), memakai pelitup muka (*Wear*), dan (*Warn*) iaitu amaran dari KKM yang lebih berkonsep peringatan seperti:

- i. Elak bersalaman / bersentuhan;
- ii. Lakukan disinfeksi pada permukaan yang kerap disentuh;
- iii. Dapatkan rawatan segera jika bergejala;
- iv. Amalkan etika batuk dan bersin yang betul;
- v. Duduk di rumah dan elakkan aktiviti kunjung-mengunjung.

Kebersihan tangan adalah langkah yang paling berkesan dalam pencegahan penularan mikroorganisma yang menyebabkan jangkitan dalam masyarakat serta di tempat kerja (Jumaa, 2005). Oleh itu, masyarakat perlu mengutamakan kebersihan diri termasuk kerap mencuci tangan dengan air dan sabun, menggunakan *hand sanitizer*, disinfeksi permukaan yang kerap disentuh, memakai pelitup muka apabila berada di tempat awam (Feng et al., 2020) dan mengamalkan etika batuk yang betul (Wolff, 2020). Semua pihak juga perlu mempraktikkan jarak fizikal untuk memastikan virus tidak menular dalam komuniti (World Health Organization, 2020).

Persepsi dan penerimaan terhadap norma baharu adalah penting untuk melihat kesediaan masyarakat dalam usaha memutuskan jaringan jangkitan COVID-19. Menurut Kamus Dewan (2007), persepsi adalah gambaran atau bayangan dalam hati atau fikiran (tentang sesuatu), pandangan (menerusi pancaindera), tanggapan. Manakala penerimaan pula adalah perihal (perbuatan dan sebagainya) menerima. Masyarakat perlu diberi pengetahuan oleh pihak kesihatan tentang langkah-langkah pencegahan COVID-19 agar norma baharu ini menjadi kepercayaan masyarakat. Mesej yang disampaikan oleh pihak kesihatan perlulah cukup dan lengkap walaupun tiada siapa yang tahu ia dapat membentuk tingkah laku norma baharu masyarakat (Mishagina et al., 2020). Oleh itu, tinjauan ini dijalankan adalah untuk mengenalpasti persepsi masyarakat yang merangkumi kesediaan dan kepatuhan terhadap pelaksanaan norma baharu dan penerimaan masyarakat untuk amalkan 3W dan elak 3S.

1.1 Objektif

Objektif Umum

Mengenalpasti persepsi dan penerimaan masyarakat di negeri Pahang terhadap norma baharu kesan daripada COVID-19.

Objektif Khusus

1. Mengenalpasti persepsi masyarakat di negeri Pahang terhadap norma baharu.
2. Mengenalpasti penerimaan masyarakat di negeri Pahang terhadap norma baharu daripada aspek amal 3W dan elak 3S.

1.2 Kerangka Konsep

Tinjauan ini memberi penekanan kepada elemen persepsi terhadap pelaksanaan norma baharu dan penerimaan masyarakat untuk mengamalkan norma baharu di negeri Pahang kesan daripada COVID-19.



Rajah 1: Kerangka konsep persepsi dan penerimaan masyarakat di negeri Pahang terhadap norma baharu kesan daripada COVID-19.

1.3 Persepsi masyarakat terhadap norma baharu

Pendekatan norma baharu perlu dilakukan oleh masyarakat. Oleh itu, masyarakat perlu mengubah tingkah laku mereka kepada norma baharu bagi membendung penularan jangkitan COVID-19. Tinjauan ini dijalankan adalah untuk melihat persepsi masyarakat sama ada bersedia dan patuh terhadap pelaksanaan amalan norma baharu.

1.4 Penerimaan daripada aspek amalkan 3W

Amalan 3W menjadi langkah utama dalam memutuskan rantaian COVID-19 daripada merebak. Sehubungan itu, membudayakan norma baharu dengan mengamalkan 3W adalah selaras dengan saranan Pertubuhan Kesihatan Sedunia (WHO) dan KKM. Amal 3W yang disarankan meliputi:

- i. Kerap cuci tangan dengan air dan sabun.
- ii. Guna *hand sanitizer*.
- iii. Pakai pelitup muka.
- iv. Patuhi jarak fizikal 1 meter.
- v. Keluar rumah jika perlu sahaja.
- vi. Amalan etika batuk dan bersin yang betul.
- vii. Tidak bersalaman dan bersentuhan.
- viii. Segera dapatkan rawatan jika bergejala.
- ix. Temu janji secara atas talian.
- x. Disinfeksi pada permukaan yang disentuh.
- xi. Beli barang secara atas talian.
- xii. Melakukan imbasan suhu badan sebelum masuk premis.

1.5 Penerimaan daripada aspek elakkan 3S

Elakkan 3S menjadi langkah utama dalam memutuskan rantaian COVID-19 daripada merebak iaitu:

- i. Elak mengadakan perhimpunan secara besar-besaran.
- ii. Elak berada di tempat yang sempit dan tertutup.
- iii. Elak bersembang dekat-dekat.
- iv. Elak melakukan aktiviti kunjung-mengunjung.
- vi. Elak berada di tempat yang sesak.

2. METODOLOGI

2.1 Kumpulan Sasaran

Responden di negeri Pahang yang menjawab soalan tinjauan secara atas talian (*online*) menggunakan *Google Form*.

2.2 Reka Bentuk Tinjauan

Tinjauan ini menggunakan kaedah keratan rentas secara atas talian menggunakan *Google Form* bermula 28 April sehingga 12 Mei 2020 iaitu dalam tempoh PKP dan PKPB. Tinjauan ini melibatkan sebanyak 2,213

responden di negeri Pahang. Tempoh tinjauan ini dijalankan bermula dari 28 April 2020 sehingga 12 Mei 2020 sewaktu tempoh PKP. Soalan tinjauan ini dihebahkan melalui saluran media sosial menggunakan aplikasi *WhatsApp*. Terdapat tiga (3) bahagian dalam instrumen tinjauan iaitu demografi responden, persepsi serta penerimaan terhadap norma baharu iaitu amalkan 3W dan elak 3S. Demografi responden adalah umur, jantina, daerah (yang terdapat di negeri Pahang), pekerjaan serta bangsa. Persepsi masyarakat dilihat menerusi pandangan, kesediaan, dan kepatuhan terhadap pelaksanaan norma baharu. Manakala penerimaan masyarakat dilihat daripada aspek norma baharu iaitu amalkan 3W dan elak 3S.

Jadual 1: Bahagian dalam Soalan Tinjauan

Bahagian A: Demografi Responden	5 item
Bahagian B: Persepsi	3 item
Bahagian C: Amalkan 3W	12 item
Bahagian D: Elakkan 3S	5 item

2.3 Kaedah

Tinjauan ini menggunakan kaedah deskriptif dan dianalisis menggunakan perisian Excel 2013. Data dianalisis menggunakan bilangan kekerapan dan peratusan.

3. HASIL

3.1 Bahagian A: Demografi Responden

Jadual 2: Demografi Responden

Perkara		Bilangan (n) dan Peratus (%)
Umur	8 – 19 tahun	22 (1.00)
	20 – 29 tahun	307 (13.87)
	30 – 39 tahun	844 (38.13)
	40 – 49 tahun	650 (29.37)
	50 – 59 tahun	353 (15.95)
(n = 2,213)	60 tahun ke atas	37 (1.67)
Jantina	Lelaki	791 (35.74)
	Perempuan	1,422 (64.25)

Daerah	Kuantan	1,104 (49.88)
	Temerloh	245 (11.07)
	Bentong	213 (9.62)
	Bera	157 (7.09)
	Jerantut	123 (5.56)
	Maran	121 (5.47)
	Pekan	68 (3.10)
	Lipis	60 (2.71)
	Raub	56 (2.53)
	Rompin	49 (2.21)
	Cameron Highlands	17 (0.77)
Pekerjaan	Penjawat Awam	1,289 (58.24)
	Swasta / Bekerja sendiri	593 (26.80)
	Suri Rumah	185 (8.36)
	Pelajar	70 (3.16)
	Pesara	40 (1.80)
	Tidak bekerja	36 (1.36)
Bangsa	Melayu	2,096 (94.71)
	Cina	57 (2.57)
	India	30 (1.36)
	Lain-lain	30 (1.36)

Maklumat demografi responden menunjukkan bahawa kumpulan usia 30-39 tahun (38.13%) adalah paling tinggi menjawab soalan tinjauan, begitu juga responden perempuan (64.25%), daerah Kuantan (49.88%), bekerja sebagai penjawat awam (58.24%) dan bangsa Melayu (94.71%).

3.2 Bahagian B: Persepsi

Jadual 3: Persepsi Responden

Item	Persepsi	Bilangan (n) dan Peratus (%)
Pandangan terhadap norma baharu	Mudah dilakukan	1,264 (57.11)
	Sukar dilakukan	949 (42.88)
Kesediaan menjalani norma baharu	Setuju	2,110 (95.34)
	Tidak setuju	103 (4.65)
Kepatuhan menjalani norma baharu	Perlu patuh	2,205 (99.63)
	Tidak perlu patuh	8 (0.36)

Berdasarkan maklumat persepsi pula dapat dilihat bahawa lebih daripada separuh responden iaitu sebanyak 57.11% memberikan pandangan bahawa norma baharu mudah dilakukan. Manakala, lebih daripada 90% responden bersedia (95.34%) dan patuh (99.63%) untuk menjalani norma baharu.

3.3 Bahagian C: Amalkan 3W

Jadual 4: Amalkan 3W

Elemen	Ya n (%)	Tidak n (%)
Patuhi jarak fizikal 1 meter	2,201 (99.45)	12 (0.54)
Keluar rumah jika perlu sahaja	2,189 (98.92)	24 (1.08)
Kerap basuh tangan dengan air dan sabun	2,182 (98.60)	31 (1.40)
Amalan etika batuk dan bersin yang betul	2,178 (98.41)	35 (1.58)
Tidak bersalaman dan bersentuhan	2,174 (98.23)	39 (1.76)
Segera dapatkan rawatan jika bergejala	2,161 (97.65)	52 (2.34)
Pakai pelitup muka	2,142 (96.75)	71 (3.25)

Guna <i>hand sanitizer</i>	2,050 (92.63)	163 (7.36)
Temu janji secara atas talian	2,030 (91.73)	183 (8.27)
Disinfeksi pada permukaan yang kerap disentuh	1,775 (80.20)	438 (19.79)
Beli barang secara atas talian	1,750 (79.07)	463 (20.92)
Melakukan imbasan suhu badan sebelum masuk premis	1,668 (75.37)	545 (24.2)

Dapatan tinjauan menunjukkan lebih 80% responden mengamalkan 3W (*Wash, Wear, Warn*). Sebanyak 99.45% responden patuhi jarak fizikal 1 meter, 98.92% keluar rumah jika perlu sahaja dan 98.60% kerap basuh tangan dengan air dan sabun.

3.4 Bahagian D: Elakkan 3S

Jadual 5: Elakkan 3S

Elemen	Ya n (%)	Tidak n (%)
Elak mengadakan perhimpunan secara besar-besaran	2,197 (99.27)	16 (0.72)
Elak berada di tempat yang sempit dan tertutup	2,196 (99.23)	17 (0.76)
Elak bersembang dekat-dekat	2194 (99.14)	19 (0.86)
Elak melakukan aktiviti kunjung-mengunjung	2,173 (98.19)	40 (1.81)
Elak berada di tempat yang sesak	1,987 (89.78)	226 (10.21)

Dapatan tinjauan menunjukkan lebih 80.00% responden dapat menerima norma baharu dengan elak mengadakan perhimpunan secara besar-besaran (99.27%), elak berada di tempat yang sempit dan tertutup (99.23%) dan elak bersembang dekat-dekat (99.14%).

4. PERBINCANGAN

4.1 Persepsi Masyarakat Terhadap Norma Baharu

Hasil tinjauan ini mendapati lebih daripada separuh masyarakat di negeri Pahang (57.11%) berpendapat bahawa norma baharu mudah dilakukan. Masyarakat bersetuju untuk menjalani norma baharu dalam kehidupan seharian mereka (95.34%). Menurut Zafir Khan Mohamed Makhbul (2020), “Setiap individu perlu meninggalkan normaliti biasa. Mereka perlu tingkatkan kemampuan diri dalam menghadapi realiti yang akan datang yang mungkin lebih mencabar. Norma baharu ini mungkin dirasakan janggal dan sukar untuk diaplikasikan sekarang tetapi akan menjadi kebiasaan dan individu haruslah menerimanya dengan hati dan pemikiran yang terbuka”. Dapatan tinjauan turut menunjukkan sebanyak 99.63% masyarakat di negeri Pahang juga bersetuju untuk mematuhi norma baharu. Peratusan dapatan yang tinggi ini sejajar dengan kenyataan Ketua Polis Pahang YDH CP Dato’ Abd Jalil. Beliau menyatakan 90.00% hingga 95.00% masyarakat di negeri Pahang mematuhi arahan PKP selepas lima hari dilaksanakan (Pahang Media, 2020).

Ketua Pengarah Kesihatan, Tan Sri Dato’ Dr Noor Hisham Abdullah menasihati rakyat Malaysia untuk menyesuaikan diri dengan norma baharu dengan mengikut garis panduan yang telah ditetapkan. Beliau menekankan kepentingan mematuhi SOP yang memberi penekanan kepada penjarakan fizikal, menjaga keselamatan dan kebersihan diri. “Ini adalah tanggungjawab sosial kita, dan kita memerlukan disiplin dan kepatuhan sosial untuk melaksanakan dan mempraktikkan SOP. Tindakan setiap individu mempunyai kesan rantaian terhadap bagaimana kita menguruskan COVID-19 dalam komuniti kita. Kita harus mengadaptasi norma baharu dalam kehidupan kita,” katanya (Diyana, 2020). Dapatan tinjauan ini membuktikan bahawa masyarakat negeri Pahang akur kepada arahan yang dikeluarkan berkaitan norma baharu. Mereka bersetuju untuk mematuhi norma baharu tersebut dan merasakan bahawa bukanlah sukar untuk melaksanakannya dalam usaha untuk memutuskan jaringan jangkitan COVID-19.

4.2 Penerimaan Masyarakat Untuk Amalkan 3W dan Elakkan 3S

i. Kerap Basuh Tangan Dengan Air dan Sabun atau Guna *Hand Sanitizer*

Tinjauan norma baharu bagi aspek kebersihan diri menunjukkan majoriti masyarakat negeri Pahang menunjukkan sokongan yang tinggi terhadap kerap basuh tangan dengan air dan sabun (98.60%). Dapatan tinjauan ini disokong oleh kajian sistematik yang dijalankan oleh Rabie dan Curtis (2006) yang menyatakan amalan basuh tangan dapat mengurangkan risiko jangkitan pernafasan berdasarkan lapan kajian yang dilaporkan turut menunjukkan basuh tangan dapat merendahkan risiko jangkitan pernafasan dalam perkadaran antara 6% hingga 44%. Mencuci tangan adalah elemen penting dalam penjagaan kebersihan yang betul. Mencuci tangan merupakan langkah paling penting untuk mencegah penyebaran sebarang penyakit. Tangan harus dibasuh dengan menggunakan air dan sabun selama 30 saat serta selepas mencuci, individu tersebut perlu mengelak daripada menyentuh permukaan yang tercemar dengan tangan sendiri (Allegranzi et al., 2011). KKM menyarankan tujuh (7) langkah mencuci tangan dengan betul kerana tangan yang bersih boleh mencegah penyakit. Tujuh (7) langkah mencuci tangan yang disarankan adalah; (i) basahkan tangan dan ratakan sabun dengan sempurna, (ii) gosok kedua-dua tapak tangan, (iii) gosok setiap jari dan celah jari, (iv) gosok kuku di tapak tangan, (v) gosok belakang tangan dan celah jari, (vi) basuh tangan dengan air bersih secukupnya, dan (vii) keringkan tangan dengan kain bersih atau tisu (Jabatan Kesihatan Negeri Pahang, 2014).

Hasil tinjauan ini juga mendapati majoriti masyarakat negeri Pahang turut menyatakan penerimaan yang positif terhadap penggunaan *hand sanitizer* (92.63%). *Centers for Disease Control and Prevention* (CDC) mengesyorkan mencuci tangan dengan menggunakan air dan sabun. Namun sekiranya kemudahan tersebut tiada, penggunaan *hand sanitizer* yang mempunyai sekurang-kurangnya 60% kandungan alkohol dapat mengelakkan penyebaran kuman kepada orang lain (Centers for Disease Control and Prevention, 2020). Kajian oleh Azlan et al. (2020), menunjukkan 87.80% masyarakat Malaysia mengambil langkah pencegahan COVID-19 dengan mengamalkan aspek kebersihan tangan dengan betul. Alkohol berkesan dalam membunuh bakteria dan virus. Kandungan alkohol sebanyak 60 - 95% adalah paling efektif untuk membunuh bakteria dan virus. (Simone, 2005).

ii. Lakukan Disinfeksi pada Permukaan yang Kerap Disentuh

Masyarakat negeri Pahang turut menyedari kepentingan disinfeksi pada permukaan yang kerap disentuh. Hasil tinjauan ini menunjukkan 80.20% responden yang menyatakan demikian. Disinfeksi adalah proses untuk membasmi kuman bagi mengelakkan jangkitan penyakit (Centers for Disease Control and Prevention, 2016). Oleh itu, permukaan persekitaran mesti dibersihkan dengan menggunakan air dan disinfektan (Asgharzadeh et al., 2007). Disinfeksi penting untuk mengurangkan penularan jangkitan COVID-19 di rumah dan tempat awam seperti pejabat, sekolah, gimnasium, pasar raya, bank, stesen minyak, pengangkutan awam serta restoran. Permukaan yang kerap disentuh seperti tombol pintu, pemegang tingkap, kaunter, pamtandas, pemulas paip, lif, telefon pintar, papan kekunci komputer (World Health Organization, 2020). Dapatan ini turut disokong oleh Kampf et al. (2020) yang menyatakan bahawa disinfeksi dan pembersihan permukaan yang kerap disentuh seperti pintu, tandas, meja, suis dan sinki mesti dilakukan dengan membasmi kuman. Kajian yang dijalankan oleh Cozad dan Jones (2003) juga menunjukkan bahawa disinfeksi persekitaran dapat memberi manfaat kepada kesihatan awam dengan mengurangkan insiden jangkitan kuman.

iii. Patuhi Jarak Fizikal dan Elak 3S

Jarak fizikal bermaksud menjarakkan diri dari tempat orang awam berkumpul, mengelakkan perhimpunan besar dan cuba untuk menjarakkan diri sekurang-kurangnya satu (1) meter antara satu sama lain (World Health Organization, 2019). Individu yang bergejala perlu tinggal di bilik berasingan dan tidak berkongsi peralatan makanan, peralatan penjagaan diri serta bilik mandi (Centers for Disease Control and Prevention, 2020). Budaya jarak fizikal yang disarankan adalah; (i) letakkan tangan kanan di dada kiri sebagai ganti bersalam, (ii) jarakkan diri sekurang-kurangnya satu (1) meter daripada orang lain, (iii) elakkan keluar dari rumah jika tiada keperluan mendesak, dan (iv) elakkan tempat tumpuan orang ramai (Jabatan Kesihatan Negeri Pahang, 2020).

Majoriti masyarakat menyedari kepentingan penjarakan fizikal dalam menangani penularan jangkitan COVID-19. Tinjauan mendapati sebanyak 99.45% responden bersetuju untuk patuhi jarak

fizikal 1 meter, sebanyak 99.27% responden tidak mengadakan perhimpunan secara besar-besaran dan 98.92% keluar rumah jika perlu sahaja, 98.23% responden tidak bersalaman atau bersentuhan. Ketua Pengarah Kesihatan, Tan Sri Dato' Dr Noor Hisham Abdullah menasihatkan masyarakat menyusun semula ruang pejabat agar lebih lapang dan selamat, melakukan disinfeksi seperti di pantri atau ruang solat (surau), dan menghadkan bilangan orang untuk berada di ruang tempat tersebut pada satu-satu masa untuk memastikan jarak sosial yang selamat (Diyana, 2020). Penyebaran virus adalah lebih rendah jika mengamalkan penjarakan fizikal 1 meter dan lebih berbanding jarak kurang daripada satu meter (Chu et al., 2020). Manakala kajian yang dijalankan oleh Qazi et al. (2020) menunjukkan penjarakan fizikal mempunyai hubungan yang signifikan dengan kesedaran masyarakat terhadap isu semasa. Kajian yang dijalankan oleh Muto et al. (2020) pula menunjukkan lebih 80% responden mengamalkan langkah-langkah penjarakan fizikal iaitu 80.50% responden menjauhi tempat yang sesak dengan orang ramai berada berdekatan dan 86.80% responden tidak pergi menghadiri perhimpunan besar-besaran serta kebanyakan masyarakat Jepun menunjukkan beberapa perubahan tingkah laku bagi mencegah jangkitan coronavirus.

Abubakar et al. (2012) pula berkata jangkitan pernafasan mudah berlaku jika berkumpul secara beramai-ramai atau berada di tempat yang sesak. Perhimpunan secara besar-besaran ditakrifkan sebagai himpunan kumpulan manusia lebih daripada 1,000 orang di lokasi dengan tujuan dan dalam jangka masa tertentu (Yezli & Alotaibi, 2016). Perhimpunan secara besar-besaran boleh dirancang atau secara spontan dan berulang atau sporadik. Perhimpunan secara besar-besaran yang dirancang adalah seperti acara sukan, sosial, kebudayaan, keagamaan, dan politik (World Health Organization, 2008). Perhimpunan secara besar-besaran yang tidak dirancang adalah seperti acara pengebumian. Perhimpunan besar-besaran mungkin juga merangkumi pusat pemindahan penduduk akibat bencana alam, konflik, dan peperangan (World Health Organization, 2015). Implikasi utama perhimpunan secara besar-besaran adalah terdedah kepada risiko keselamatan kesihatan seperti jangkitan penyakit berjangkit serta wabak (Karami et al., 2019). Bersalam tangan adalah budaya sapaan masyarakat, namun, budaya ini berpotensi dalam menyebarkan jangkitan secara langsung antara individu (Mela &

Whitworth, 2014). Bishai et al. (2011) juga menyatakan bahawa sentuhan secara langsung antara individu berpotensi menjadi penyebaran utama jangkitan kuman.

iv. Amal Etika Batuk dan Bersin yang Betul, Dapatkan Rawatan Segera Jika Bergejala dan Pakai Pelitup Muka

Masyarakat juga mempunyai tahap kesedaran yang tinggi terhadap kepentingan penjagaan kesihatan diri bagi mengekang penularan jangkitan COVID-19. Tinjauan ini mendapati sebanyak 98.41% responden bersetuju untuk mengamalkan etika batuk dan bersin yang betul, 97.65% responden bersetuju untuk dapatkan rawatan segera jika bergejala, dan 96.7% responden bersetuju memakai pelitup muka.

Jangkitan pernafasan biasanya disebarkan melalui partikel-partikel di udara yang dilepaskan oleh individu semasa bercakap atau batuk (Centers for Disease Control and Prevention, 2015). CDC mencadangkan amalan etika batuk yang betul adalah perlu untuk mencegah jangkitan pernafasan melalui udara (Siegel, 2007). Individu yang mengalami gejala pernafasan perlu mengamalkan etika batuk sebagai langkah pencegahan dan kawalan dengan cara tutup mulut dan hidung ketika batuk atau bersin dengan tisu atau pelitup muka. Kemudian, buang tisu atau pelitup muka yang telah digunakan dengan cara yang betul dan segera cuci tangan (World Health Organization, 2007). Kajian yang dilakukan oleh Dutta (2020) menunjukkan bahawa titisan air liur mungkin mengandungi lebih daripada 2 juta virus. Menurut Zhu (2006), kira-kira 3,000 titisan air liur dikeluarkan daripada badan setiap kali batuk. Manakala, setiap kali bersin, kira-kira 40,000 titisan air liur dikeluarkan dan kuantiti ini mampu untuk mencemari ruang tertutup seperti bilik tidur, pejabat dan ruang tamu (Marr, 2019). Anda boleh hentikan penyebaran kuman ketika batuk atau bersin dengan cara; (i) pakai pelitup muka, (ii) palingkan muka daripada orang lain dan makanan apabila batuk atau bersin, (iii) tutup hidung dan mulut anda dengan tisu atau sapu tangan ketika batuk atau bersin serta buang tisu ke dalam bakul sampah, (iv) elakkan pergi ke tempat yang sesak, (v) jangan berkongsi sapu tangan atau tuala dengan orang lain, (vi) elakkan menyentuh muka, hidung atau mulut dan (vii) jika tiada pilihan lain, anda boleh menggunakan lengan baju atau skaf. Jangan bersentuhan dengan orang lain sehingga pakaian tersebut ditukar (Jabatan Kesihatan Negeri Pahang, 2019).

Menurut kajian Zhong (2020), sebanyak 98.20% responden bersetuju cara yang berkesan untuk mengurangkan penyebaran virus adalah dengan melakukan isolasi dan rawatan terhadap orang yang dijangkiti virus COVID-19. Manakala 97.30% responden bersetuju bahawa individu yang mempunyai kontak dengan pesakit COVID-19 harus segera dikuarantinkan. Merawat pesakit pada peringkat awal dengan segera akan dapat mencegah kondisi mereka dari ringan kepada teruk. Mendapat rawatan awal boleh mengelakkan mereka daripada dimasukkan ke unit rawatan rapi. Tindakan ini juga akan mengurangkan bebanan terhadap sektor perubatan dalam memberi perkhidmatan rawatan kepada pesakit. Merawat individu yang tidak bergejala atau mempunyai gejala ringan COVID-19 akan memberi manfaat kepada semua (Malley & Lipsitch, 2020). Sehubungan itu, penting bagi setiap individu mendapatkan rawatan awal apabila bergejala COVID-19 supaya tindakan ini dapat menguntungkan individu, keluarga, masyarakat dan negara itu sendiri dari segi kesihatan, keselamatan, ekonomi dan kesejahteraan kehidupan.

Sehubungan itu, pemakaian pelitup muka dapat mengurangkan risiko jangkitan yang tinggi (Chu, 2020). Dapatan kajian Zhong et al. (2020) menunjukkan sebanyak 73.90% responden menyatakan bahawa orang ramai boleh memakai pelitup muka bagi mengelakkan risiko jangkitan COVID-19. Masyarakat yang memakai pelitup muka dapat mengurangkan risiko jangkitan kerana pelitup muka dapat menyekat penyebaran titisan cecair pernafasan dalam kalangan komuniti (Leffler et al., 2020) dan pemakaian pelitup muka juga berjaya dilaksanakan semasa wabak lain seperti SARS dan MERS (Syed et al., 2020). Berdasarkan situasi pandemik COVID-19 yang berlaku sekarang, Leffler et al. (2020) menyatakan bahawa negara-negara yang menjadikan pemakaian pelitup muka sebagai norma budaya atau menjadi dasar polisi pemerintah dapat mengurangkan risiko kematian per kapita berbanding dengan negara-negara yang tidak melaksanakan galakan pemakaian pelitup muka.

5. KESIMPULAN

Krisis COVID-19 yang berlaku pada masa kini telah menjadi peringatan kepada masyarakat bahawa pentingnya untuk mengamalkan norma baharu iaitu amalkan 3W (*Wash, Wear dan Warn*) dan elakkan 3S (elak tempat yang sesak, tempat yang sempit dan tertutup dan bersempang dekat-dekat)

bagi mengelakkan penularan jangkitan COVID-19. Amal 3W dan elak 3S merangkumi aspek kebersihan diri, penjarakan fizikal dan kesihatan diri. Majoriti masyarakat di negeri Pahang mempunyai persepsi dan penerimaan yang positif terhadap amalan norma baharu dalam memutuskan rantaian jangkitan COVID-19 daripada terus merebak. Mereka dapat menjadikan norma baharu ini sebagai budaya dan amalan dalam kehidupan seharian. Langkah yang telah diambil dan menampakkan keberkesannya dalam memutuskan jaringan COVID-19 adalah kawalan pergerakan dan jarak fizikal. Penjagaan kesihatan pada tahap maksimum adalah antara senjata utama dalam menyekat perebakan COVID-19. Aktiviti sosial dan kemasyarakatan adalah antara aktiviti biasa yang terpaksa dibatalkan atau dihentikan. Perhimpunan secara besar-besaran juga perlu dihentikan. Budaya berjabat tangan digantikan dengan meletakkan tangan kanan di dada kiri sebagai tanda hormat tanpa adanya sentuhan. Begitulah antara norma baharu yang perlu dijadikan sebagai budaya dan amalan kini. Tiada yang terkecuali daripada mengamalkan norma baharu.

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A REVIEW ON SOCIAL DETERMINANTS OF HEALTH ON COVID-19 AMONG MINORITY ETHNIC GROUP: HEALTH PROMOTION AS MEDIATOR

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ABSTRACT

The impact of COVID-19 is not similar across ethnic minority groups (EMGs). The pandemic has shone a spotlight on health disparities and created an opportunity to address the causes underlying these inequities. This review aims to highlight social determinants of health (SDH) among EMGs to the occurrences of COVID-19. We searched English language articles published between January to May 2020 using Web of Science, MEDLINE, PubMed and Science Direct to assess related articles. Of the 27 articles retrieved, nine articles included in this review. We found socioeconomic status was the most mentioned SDH that link with the rate of death from COVID-19 among EMGs. Neighbourhood and built environment, work circumstances and underlying health conditions and lower access to healthcare were also listed. Health promotion strategies to address SDH among ethnic minority should consider a multi-layered approach focusing on actionability that can be implemented at multiple structural levels.

Keywords: COVID-19, Ethnicity, Health Promotion, Minority, Social Determinants of Health

ABSTRAK

Impak COVID-19 adalah berbeza dalam kalangan kumpulan etnik minoriti. Pandemik ini telah menyerlahkan perbezaan kesihatan dan mewujudkan peluang untuk menyasarkan punca dasar kepada perbezaan ini. Artikel ini bertujuan memberi tumpuan kepada penentu sosial kesihatan dalam kalangan kumpulan etnik minoriti terhadap kes jangkitan COVID-19. Kami mencari

artikel berbahasa Inggeris yang diterbitkan antara bulan Januari hingga Mei 2020 menggunakan Web of Science, MEDLINE, PubMed dan Science Direct untuk menilai artikel yang berkaitan. Daripada 27 artikel yang dikesan, sembilan artikel telah dianalisa. Status sosioekonomi adalah penentu sosial kesihatan paling banyak disebut yang berkaitan dengan kadar kematian akibat COVID-19 dalam kalangan kumpulan etnik minoriti. Kejiranan dan persekitaran yang telah terbina, keadaan kerja dan keadaan kesihatan serta akses lemah terhadap penjagaan kesihatan turut tersenarai. Strategi promosi kesihatan untuk menasarkkan penentu sosial kesihatan dalam kalangan kumpulan etnik minoriti perlu mempertimbangkan kaedah beberapa lapisan yang fokus kepada tindakan yang boleh dilaksana di beberapa peringkat secara berstruktur.

Kata kunci: COVID-19, Etnik, Promosi Kesihatan, Minoriti, Penentu Sosial Kesihatan

1. INTRODUCTION

According to the United States Department of Health and Human Services, social determinants of health (SDH) refer to the conditions in the environments where people are born, live, learn, work, play and worship that affect a wide range of health, functioning and quality of life outcomes and risks. The Healthy People 2030 has listed five main key areas of SDH namely healthcare access and quality, education access and quality, social and community context, economic stability and neighbourhood and built environment. The COVID-19 pandemic has highlighted the significance of the SDH including the reported cases and risk communication to reduce the disease burden (Ataguba & Ataguba, 2020). As COVID-19 pandemic continues advancing globally, reporting of clinical outcomes and risk factors for intensive care unit admission and mortality are emerging.

The association between ethnicity and reported cases of COVID-19 was a concerned after ten doctors in the United Kingdom died from COVID-19 were identified as being from ethnic minority groups (EMGs) (Khunti et al., 2020). Apart from that, there are also significant ethnic inequalities in the risk of admission to hospital and risk of death from the COVID-19 reported among EMGs (Resnick et al., 2020). EMGs have also been disproportionately affected by COVID-19 in the United States. A study by Wilder (2020) disclosed that COVID-19 has immensely affected EMGs with high rates of death among African American, Native American, and Latin communities. In United Kingdom 2,300 of 6,770 critically ill COVID-19 patients were from

EMGs (as of 1st May 2020). In UK the EMGs made up about 14% of total population (Platt & Warwick, 2020). There are more deaths from COVID-19 among African American than in White American as study revealed in the United States. For example, in Chicago, nearly 52% deaths from COVID-19 were among African American although they represent only about 30% of the state's population. In New York, death rate was more prominent between African American and Hispanic than White American (Bhala et al., 2020). Similarly, Raifman and Raifman (2020) emphasized that people who are black, American Indian, or live-in low-income households are more likely to have conditions associated with COVID-19 relative to those who are white or are living in higher-income households. The higher observed incidence and severity in EMGs may be associated with socioeconomic status (SES), cultural, or lifestyle factors, genetic predisposition, or pathophysiological differences in susceptibility or response to infection.

Ethnicity is a complex entity composed of genetic make-up, social constructs, cultural identity, and behavioural pattern (Pareek et al., 2020). EMGs around the world are historically among the most vulnerable populations and often subject to exclusion, marginalization and poverty (Utzinger et al., 2010). Evidence showed ethnicity could interplay with virus spread through cultural, behavioural and societal differences including lower SES, health-seeking behaviour and affecting cohabitation (Pareek et al., 2020). According to the report by Public Health England (2020), in practice after migration or by birth in the country, ethnic minority populations should experience health-care outcomes equal to those of others. However, this is doubtful. Typically, the most reported disparities are observed among African American and Latino individuals, and where data exist, American Indian, Alaska Native, and Pacific Islander populations. Preliminary prevalence and mortality estimate in multiple geographic areas, which are being tracked daily, demonstrated a consistent pattern of EMGs (World Health Organization, 2020). Long-standing systemic drivers of health inequities, such as unstable and adverse working conditions, increasing economic inequalities, and anti-democratic political structures and institutions, have been highlighted during COVID-19 pandemic (Paramoer et al., 2021). This discrepancy highlighted potential racial, economic, social and other inequalities among the identified determinants (Khunti et al., 2020). Therefore, this review aims to identify SDH that increase susceptibility being infected with COVID-19 among EMGs and addressing those issues with effective health promotion (HP) strategies.

2. METHODS

A systematic search was conducted for English language journal articles published from 1st January 2020 to 31st May 2020 from the following databases: Web of Science, MEDLINE, PubMed and Science Direct. The topic considered for the selection of articles was the one related to the global pandemic caused by COVID-19 and how SDH plays role in affecting reported cases. The keywords were selected from literatures and references mainly from the World Health Organization and Centers for Disease Control and Prevention. Three groups of keywords were combined for the search: social determinant of health OR ethni* OR rac* OR minorit* AND coronavirus disease OR COVID-19 AND health promotion. A forward and backward search was conducted to identify additional articles. Reference lists and cited articles of included studies were cross-searched for other potential eligible studies using the same inclusion criteria.

2.1 Inclusion of Studies

After removing duplicate articles, two reviewers (SAS and KAK) independently screened the remaining articles by reading the abstracts and if necessary full text (when titles and abstracts provided inadequate information for determining whether studies should be included or excluded). In order to apply these criteria, a first preliminary reading of the title and summary of each article was carried out, which made it possible to rule out papers that did not meet the above-mentioned criteria. The articles were selected for review after thorough screening and exclusion for ineligible articles. Articles were excluded if the article was not related to SDH, COVID-19 and not focusing on minorities or ethnicity. To extract data from the articles, the following coding was established; (1) author/authors, (2) year of publication, (3) title of the article (4) journal name (5) country of publication and (6) key findings.

3. RESULTS

The original search identifies the total of 27 articles. A large variety in the article characteristics, objectives of the study and outcome parameter was reported. After removing duplicates and thorough screening only nine articles were included in this review. Overall, five articles were from the US, two from the UK and the remaining articles each were from the Republic

of Ireland and China. Of all the nine articles included, five are editorials, three are review articles and only one research article. Almost all articles in this review highlighted SES are the main determinants of higher incidence of COVID-19 cases reported among EMGs. Among factors related to SES including the poverty, living conditions and nature of work. The underlying health conditions among ethnic minority groups were also emphasized.

4. DISCUSSION

Addressing the SDH is essential for reducing health inequalities especially in developing countries with weak health systems (Camargo, 2011). However, to understand the underlying causes of this gaps are complex.

4.1 Socioeconomic Status (SES)

Our findings highlighted SES contribute significantly to high proportion of COVID-19 cases among EMGs. Data from existing study also revealed that SES has a significant impact on physical health (Wang & Geng, 2019). This is in agreement with current study by Khunti et al. (2020) which reported that the large number of COVID-19 cases and severity in EMGs may be associated with SES, cultural, or lifestyle factors, genetic predisposition, or pathophysiological differences in susceptibility or response to infection. Health differences between ethnic groups are often due to economic and social conditions that are more common among some racial and EMGs (Hooper et al., 2020). Disadvantaged SES is widely associated with disease and mortality (Khalatbari-Soltani et al., 2020), and this review found certain minority EMGs are susceptible to COVID-19 because of the SES. However, the influence of SES on COVID-19 transmission, severity and outcomes is not yet known and is subject to detail investigation and this warrant future research focusing on the area.

4.2 Neighbourhood and Built Environment

Apart from SES, this review also found neighbourhood and built environment also one of the SDH that link with COVID-19 among EMGs. For EMGs, living conditions may contribute to underlying health conditions and make it difficult to follow steps to prevent getting infected with COVID-19 or to seek treatment if they do get sick (Manderson & Levine, 2020). According to Tai et al. (2020), living conditions in some minority communities further increase risk for COVID-19 infection

and/or transmission. Members of EMGs may be more likely to live in densely populated areas because of institutional racism in the form of residential housing segregation. People living in densely populated areas may find it more difficult to practice prevention measures such as social distancing. Also, many members of EMGs live in neighbourhoods that are farther from grocery stores and medical facilities, making it more difficult to receive care if sick and stock up on supplies that would allow them to stay home. Another point to highlight is that EMGs are also over-represented in jails, prisons, and detention centres, which have specific risks of COVID-19 due to congregate living, shared food service and many more (Rubin, 2020).

4.3 Work Circumstances

The types of work and policies in the work environments where people in some racial and EMGs are overrepresented can also contribute to their risk for being infected with COVID-19 (Lan et al., 2020). The risk of infection may be greater for workers in essential industries who continue to work outside the home despite outbreaks in their communities, including some people who may need to continue working in these jobs because of their economic circumstances. Workers without paid sick leave might be more likely to continue to work even when they are sick for any reason. This can increase workers' exposure to other workers who may have COVID-19, or, in turn, expose others if they themselves have COVID-19 (Dutta et al., 2020). In contrast, a study by Millett et al. (2020), suggests that higher-level of unemployment was associated with fewer COVID-19 diagnoses. Employment presumably increases the likelihood of exposure to COVID-19, and this might differentially impact black Americans because only one in five black Americans has an occupation that permits working from home.

4.4 Underlying Health Conditions and Lower Access to Care

This review also found existing health inequalities, such as poorer underlying health and barriers to getting health care, might make members of many EMGs vulnerable in COVID-19 (Clark et al., 2020). Besides that, insufficient access is also driven by a long-standing distrust of the health care system, language barriers, and financial implications associated with missing work to receive care. Further, not having health or medical insurance may also contribute to the issue.

4.5 Health Promotion as Mediator

Accounting the listed SDH in this review, it is necessary to understand the true scale of disproportionalities among EMGs before the commencement of HP action. A range of efforts is vital to counteract the apparent risk that COVID-19 will intensify existing health inequalities which soon disproportionately affect EMGs. HP and SDH approaches, when integrated, can better contribute to understanding and addressing health inequities (Jackson et al., 2013) for example to the EMGs. Hence, the HP profession plays a vital role in pandemics, and this has been abundantly evident in the responses to COVID-19 (Smith & Judd, 2020). As suggested by Burström and Tao (2020) a feasible HP approach is to increase knowledge and awareness of the underlying mechanisms of SDH.

Interventions should be informed and designed in collaboration with the community to allow appropriate measures to be taken that resonate with the needs of the communities. In addition, these measures should be evaluated for their effectiveness (Burström & Tao, 2020). In HP, there is a need for a realistic strategy to communicate important health messages particularly for COVID-19 in a concise and meaningful way that makes it easy and accessible for EMGs to understand, navigate and take action. As such, planning and developing HP campaign that feasible with EMGs by considering their SDH and their cognitive parameters will most likely able to convey the messages effectively. Another point is to ensure multi-layered strategies focusing on actionability that can be implemented at multiple structural levels, ranging from governmental to corporate and community levels (Beaunoyer et al., 2020).

5. CONCLUSIONS

Available data on EMGs disparities in COVID-19 and mortality are currently limited, but expanding. The collection and dissemination of COVID-19 data by EMGs remain critically important to guide policy, health care, prevention, and intervention efforts. Scientific studies that result in improved understanding of COVID-19 may lead to more targeted and effective community-based and health care system-based interventions. As suggested in previous study, an ideal way of integrating HP and SDH possibly happens when focus given to the stakeholders at individual, community and policy levels to improve health and health equity especially among EMGs.

6. SUGGESTIONS FOR FUTURE STUDY

More studies are needed to understand the influence of SDH among EMGs as the current pandemic is very dynamic and still uncertain. Mixed methods research will be required to fully understand the complex interplay between the various biological, social, and cultural factors underlying these early findings. These studies are also needed to guide the science of community-engaged intervention development, implementation, and evaluation and lay the foundation for a system wide goal of decreasing health disparities beyond the effects of COVID-19. The pandemic presents a window of opportunity for achieving greater equity in the health care of all vulnerable group such as EMGs.

Declaration

Author(s) declare that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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PORTAL MyHEALTH: PENGGUNAAN DAN PERSEPSI DALAM KALANGAN PESAKIT

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ABSTRAK

Portal MyHEALTH adalah sumber untuk orang ramai mendapatkan maklumat mengenai kesihatan diri dan keluarga mereka. Kajian ini bertujuan untuk mendapatkan maklumbalas tahap kepenggunaan dan persepsi pesakit terhadap Portal MyHEALTH. Kajian keratan rentas telah dijalankan di 23 buah hospital di seluruh negara yang mempunyai Pegawai Penerangan (Pelajaran Kesihatan). Sejumlah 876 pesakit berumur 18 hingga 60 tahun dari 3 buah wad (Perubatan, Pembedahan dan Ortopedik) dipilih secara persampelan rawak sistematik.. Hasil kajian menunjukkan 211 pesakit (24.1%) sedar akan kewujudan Portal MyHEALTH. Walau bagaimanapun, hanya 76 (8.7%) pesakit responden yang melayari Portal MyHEALTH. Dalam kalangan 211 pesakit yang sedar akan kewujudan Portal MyHEALTH, didapati punca utama tidak melayari portal adalah tidak tahu kegunaan Portal MyHEALTH (52.3%), tiada keperluan (25.8%), melayari portal kesihatan lain (21.1%) dan tidak ada kemudahan internet (0.8%). Penilaian keseluruhan dari aspek isi kandungan, reka bentuk dan ciri-ciri portal dalam kalangan pesakit yang melayari Portal MyHEALTH menunjukkan pada tahap baik. Kempen kesedaran Portal MyHEALTH perlu segera dilaksanakan mengikut kumpulan sasaran (remaja, dewasa & warga emas) di pelbagai lokasi. Maklumat yang dipaparkan perlu memenuhi keperluan kumpulan sasaran dan kajian penilaian perlu dilakukan semula selepas kempen kesedaran ini dilaksanakan.

Kata kunci: Penggunaan, Persepsi, Pesakit, Portal MyHEALTH

ABSTRACT

The MyHEALTH Portal is a platform for individuals seeking information about their own and their family' health. The aim of this study was to obtain feedback regarding patients' usage and perceptions of the MyHEALTH Portal. A cross sectional study was conducted in 23 hospitals throughout the country. A total of 876 patients from 3 wards (Medical, Surgical and Orthopedic) were selected by systematic random sampling. The results showed that 211 patients (24.1%) were aware of the existence of MyHEALTH Portal. However, only 76 (8.7%) of the patients were on the MyHEALTH Portal. Among the 211 patients aware of the existence of the MyHEALTH Portal, the main reasons for not browsing the portal were unaware of the use of the MyHEALTH Portal (52.3%), no need (25.8%), browsing other health portals (21.1%) and no internet access (0.8 %). The overall assessment of the content, design and features of portals among patients who visit the MyHEALTH Portal shows that they are doing well. MyHEALTH Portal awareness campaigns need to be implemented immediately by target groups (adolescent, adults & senior citizen) in various locations. The information presented should meet the needs of the target group and a review study should be conducted once this awareness campaign is implemented.

Keywords: Usage, Perception, Patients, MyHEALTH Portal

1. PENDAHULUAN

Terdapat beribu-ribu laman web perubatan. Ada yang memberikan maklumat kesihatan yang boleh dipercayai dan ada yang tidak. Sebilangan berita perubatan adalah terkini dan sebahagiannya tidak. Memilih laman web mana yang boleh dipercayai adalah langkah penting dalam mengumpulkan maklumat kesihatan yang boleh dipercayai. Walau bagaimanapun, Internet telah banyak digunakan sebagai sumber maklumat kesihatan yang penting. (<https://www.nia.nih.gov/health/online-health-information-it-reliable>).

Kajian yang dijalankan oleh Pallavi Rao (2011) dengan mengkaji faktor-faktor yang mempengaruhi keputusan pengguna untuk menggunakan portal kesihatan mendapati sebilangan responden telah menggunakan portal kesihatan tetapi terdapat juga responden yang belum menggunakan portal kesihatan. Hasil kajian juga didapati penggunaan portal kesihatan, banyak dipengaruhi oleh kepercayaan dan kepuasan portal berkenaan.

Kajian oleh Pew Internet & American life Project (2010) menunjukkan 80% pengguna Internet Amerika mencari maklumat kesihatan dalam talian sekurang-kurangnya satu topik kesihatan utama. Terdapat peningkatan besar

dalam jumlah penggunaan perkhidmatan portal kesihatan yang mereka terima. Di mana responden menyatakan portal kesihatan mendidik diri mereka mengenai rawatan perubatan baru yang dapat meningkatkan kualiti hidup mereka (Bliemel & Hassanein, 2006).

Jumlah pengguna yang mencari maklumat kesihatan dalam talian juga sangat besar. Kajian oleh Fox (2006) dan Harris Interactive (2002) menunjukkan bahawa 110-113 juta atau 80% daripada semua orang dewasa A.S. dalam talian kadang-kadang menggunakan Internet untuk mencari maklumat penjagaan kesihatan. 18% orang dewasa A.S. dalam talian menyatakan bahawa mereka sering mencari maklumat kesihatan dalam talian (Harris Interactive, 2002). Sebilangan besar pengguna maklumat kesihatan menggunakan mesin carian atau portal untuk mencari maklumat yang menarik minat mereka, bukannya pergi terus ke laman maklumat kesihatan (Fox, 2006 & Harris Interactive, 2002).

Eysenbach dan Diepgen (1999), telah menjalankan kajian motivasi pesakit mencari maklumat dan nasihat dalam talian. Hasil kajian ini, pengkaji telah membuat kesimpulan bahawa pesakit beralih ke Internet dengan soalan mereka daripada bercakap dengan doktor mereka kerana mereka kecewa dengan rawatan yang gagal atau tidak berkesan, tidak percaya pada kecekapan doktor mereka terhadap penyakit mereka, tidak selesa untuk membincangkan masalah mereka dengan doktor mereka kerana mungkin dianggap sebagai soalan bodoh, merasakan bahawa doktor mereka tidak memberi mereka maklumat yang mencukupi, kerana kesuntukan masa atau pesakit lupa bertanya kepada doktor semasa lawatan mereka.

Marconi (2002) melalui usaha yang dijalankan oleh Health Summit Working Group dalam garis panduan mereka untuk menilai kualiti maklumat kesihatan di Internet. Terdapat 7 kriteria kualiti maklumat kesihatan yang harus dinilai oleh pengguna iaitu; Kredibiliti, Kandungan, Pendedahan, Pautan, Reka Bentuk, Interaktif dan Kaveat. Walau bagaimanapun, kualiti maklumat kesihatan yang disiarkan di Internet telah menjadi perhatian banyak doktor dan akademik. Dalam penyelidikan Eysenbach et al. (2002) yang telah menjalankan kajian *Systematic Review* mendapati sebanyak 79 kajian mengenai isu ini telah untuk mencapai dua kesimpulan utama. Pertama, walaupun kualiti telah dinyatakan dengan menggunakan ketepatan, kelengkapan, keterbacaan, reka bentuk, pendedahan, dan rujukan yang disediakan sebagai kriteria, istilah kualiti memerlukan definisi operasi yang lebih baik untuk perbandingan kajian silang. Kedua, sebahagian besar

(70%) kajian penyelidikan mengenai kualiti maklumat kesihatan di Internet menyatakan bahawa kualiti adalah satu masalah.

Di Malaysia, Bahagian Telekesihatan dengan kerjasama *Multimedia Development Corporation* (MDEC), telah membangunkan Portal MyHEALTH. Bahagian Pendidikan Kesihatan, Kementerian Kesihatan Malaysia (KKM) telah diberi tanggungjawab untuk pelaksanaan dan pengoperasian sepenuhnya. Portal MyHEALTH merupakan sumber bagi orang ramai untuk mendapatkan maklumat tentang kesihatan diri dan keluarga mereka. Kajian ini bertujuan untuk mendapatkan maklumbalas tahap kepenggunaan dan persepsi pesakit terhadap Portal MyHEALTH. Portal MyHEALTH mula beroperasi pada tahun 2006 dan sebanyak 13 perkhidmatan yang disediakan adalah seperti berikut:-

- Maklumat Pendidikan Kesihatan
- Direktori Perkhidmatan Kesihatan
- Perkhidmatan Tanya Pakar
- Amaran Kesihatan
- Aktiviti Kesihatan
- Berita /Artikel Kesihatan
- Perkhidmatan Penilaian Risiko Kesihatan
- Perkhidmatan Undian Dalam Talian
- Perkhidmatan MyHEALTH Mobile
- Kuiz Kesihatan
- Soalan Lazim Kesihatan
- Media Sosial MyHEALTH
- Mobile Apps

4. METODOLOGI

Kajian keratan rentas telah dijalankan di 23 buah hospital di seluruh negara yang mempunyai Pegawai Penerangan (Pelajaran Kesihatan). Pegawai Penerangan (Pelajaran Kesihatan) di hospital-hospital tersebut adalah penyelidik bersama dalam menjalankan kajian ini. Saiz sampel dikira berdasarkan formula kajian prevalens dengan anggaran penggunaan Portal MyHEALTH sebanyak 50%; dan ketepatan (precision) sebanyak 5% dengan mengambil kira kadar tidak respon sebanyak 20% dan design effect sebanyak 2, maka saiz sampel adalah 920 responden. Sampel bagi setiap hospital adalah 45 orang responden. Kriteria pemilihan pesakit kajian adalah mereka yang pernah melayari internet dan berumur 18 hingga 60

tahun. Pensampelan dijalankan dalam kalangan pesakit di 3 wad (Perubatan, Pembedahan dan Ortopedik) melalui kaedah persampelan rawak sistematik. Kaedah pengumpulan data adalah melalui pengedaran borang soal selidik isi sendiri oleh pesakit, yang mengandungi demografi, amalan melayari internet serta pengetahuan, amalan melayari portal MyHEALTH, persepsi dan cadangan terhadap penambahbaikan Portal MyHEALTH.

5. HASIL KAJIAN

5.1 Profil Pesakit

Majoriti pesakit, 54.3% (476) adalah lelaki dan 45.7% (400) perempuan. Min umur pesakit adalah 39.6 tahun dengan julat umur 15-60 tahun. Kebanyakan pesakit berbangsa Melayu (78.1%), berpendidikan peringkat menengah (54.7%) dan berkahwin (55.7%) (Jadual 1).

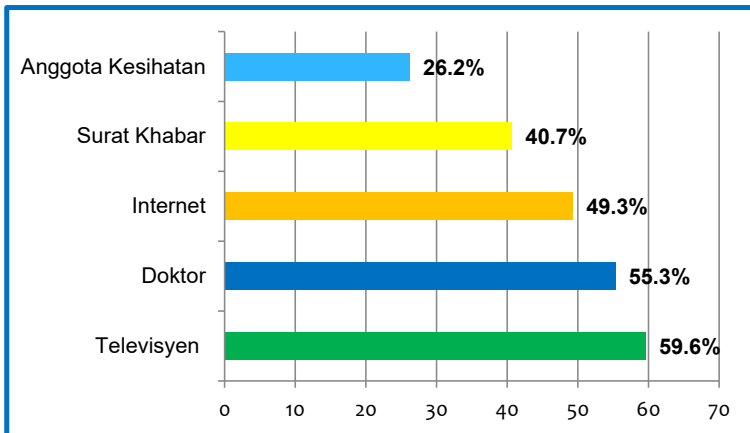
Jadual 1: Sosio Demografi Pesakit (N=876)

Demografi		Bilangan	%
Jantina	Lelaki	476	54.3
	Perempuan	400	45.7
Umur	15 - 20	144	16.4
	> 21 - 30	252	28.8
	> 31- 40	175	20.0
	> 41- 50	147	16.8
	> 51- 60	153	17.5
	Tidak menjawab	5	0.6
Bangsa	Melayu	684	78.1
	Cina	62	7.1
	India	71	8.1
	Orang Asli	3	0.3
	Bumiputera Sabah	32	3.7
	Bumiputera Sarawak	24	2.7

Pendidikan	Sarjana/PhD	4	0.5
	Ijazah	77	8.8
	Sijil/diploma	207	23.6
	Sekolah menengah	479	54.7
	Sekolah rendah	92	10.5
	Tiada pendidikan formal	15	1.7
	Tidak menjawab	2	0.2
Status Perkahwinan	Belum berkahwin	352	40.2
	Berkahwin	488	55.7
	Janda/duda	27	3.1
	Balu	8	0.9
	Tidak menjawab	1	0.1

5.2 Sumber Maklumat Kesihatan

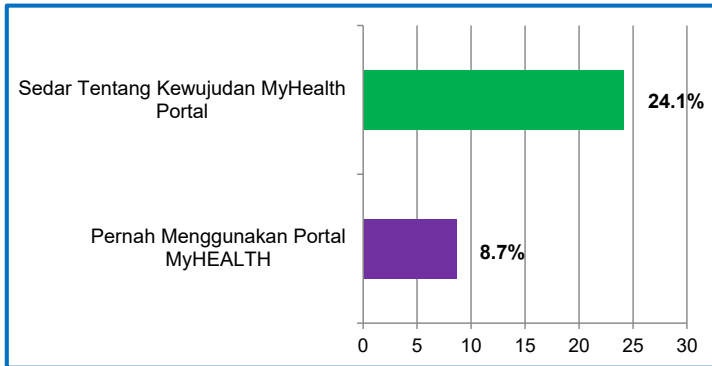
Lima (5) sumber utama maklumat kesihatan yang paling digemari oleh pesakit adalah televisyen, doktor, Internet, surat khabar dan anggota kesihatan (Rajah 1).



Rajah 1: Sumber Utama Maklumat Kesihatan (N=876)

5.3 Melayari Portal MyHEALTH

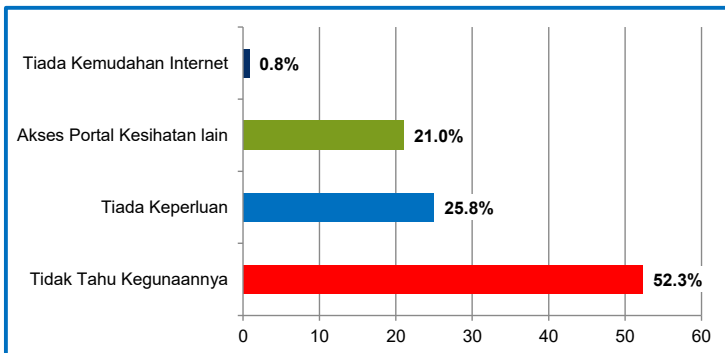
Sejumlah 211(24.1%) pesakit sedar kewujudan Portal MyHEALTH tetapi hanya 76(8.7%) pesakit pernah melayari Portal MyHEALTH (Rajah 2).



Rajah 2: Sedar Kewujudan dan Pernah Menggunakan Portal MyHEALTH (N=876)

5.4 Sebab Tidak Melayari Portal MyHEALTH

Kebanyakan pesakit tidak melayari Portal MyHEALTH kerana tidak tahu kegunaan portal tersebut (Rajah 3).



Rajah 3: Sebab Tidak Melayari Portal Myhealth (N=135)

5.5 Kekerapan Melayari dan Masa Penggunaan Portal MyHEALTH

Majoriti pesakit yang melayari Portal MyHEALTH dengan kekerapan 1 hingga 2 kali (47.4%) dalam seminggu dan masa yang digunakan kurang dari 1 jam. (Jadual 2 dan 3).

Jadual 2: Kekerapan Melayari Portal MyHEALTH (n=76)

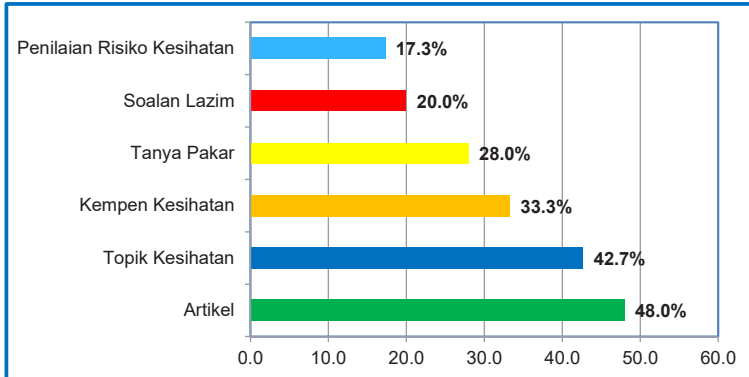
Kekerapan (kali)	Bilangan	%
1	19	25.0
2	17	22.4
3-9	29	38.1
>10	7	9.3
Tidak menjawab	4	5.2

Jadual 3: Masa digunakan melayari Portal MyHEALTH (n=76)

Masa	Bilangan	%
Kurang 1 jam	47	61.8
1 Jam	20	26.3
2 Jam	7	9.2
3 Jam	1	1.3
Tidak menjawab	1	1.3

5.6 Jenis Perkhidmatan yang Sering digunakan dalam Portal MyHEALTH

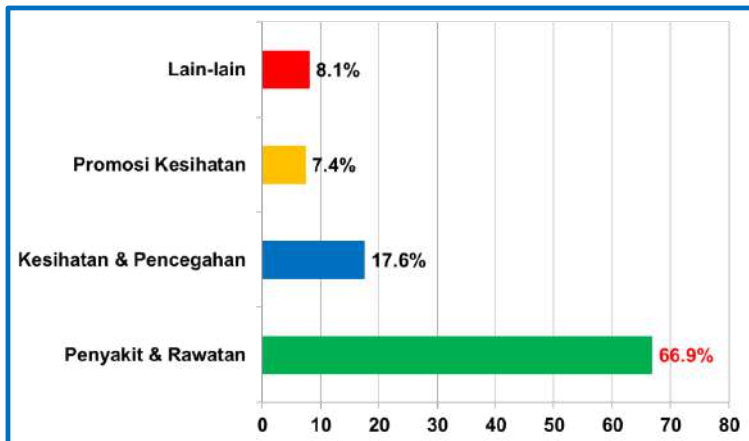
Kebanyakan pesakit memilih tajuk artikel, topik kesihatan dan kempen kesihatan ketika mencari maklumat kesihatan (Rajah 4).



Rajah 4: Jenis Perkhidmatan Yang Sering Digunakan (n=76)

5.7 Keperluan Maklumat Kesihatan

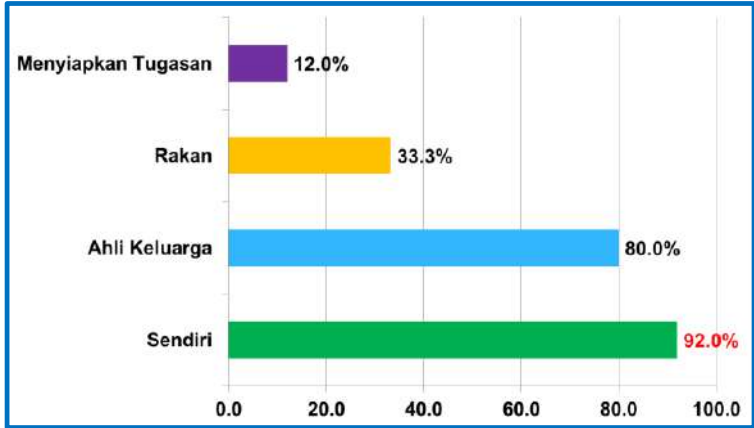
Majoriti pesakit juga memilih tajuk penyakit dan rawatan untuk keperluan maklumat kesihatan (Rajah 5).



Rajah 5: Keperluan Maklumat Kesihatan (n=76)

5.8 Tujuan Maklumat Kesihatan

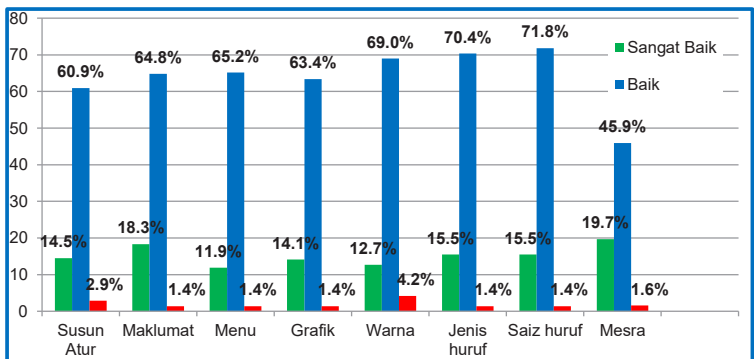
Pesakit menggunakan maklumat kesihatan untuk diri sendiri (92.0%) dan keluarga (80.0%) mereka (Rajah 6).



Rajah 6: Tujuan Maklumat Kesihatan (n=76)

5.9 Penilaian Reka Bentuk Portal MyHEALTH

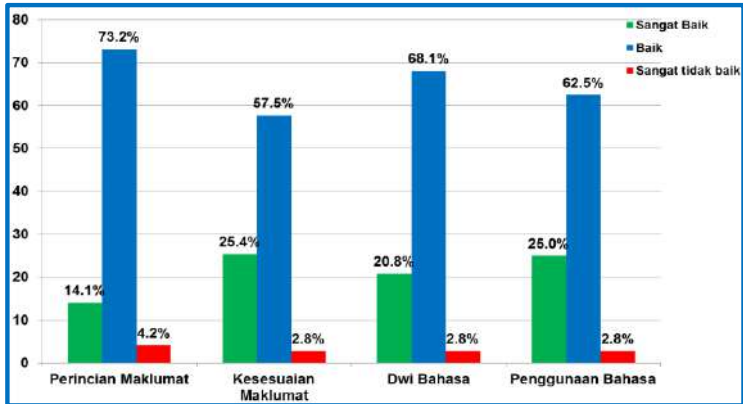
Majoriti pesakit menganggap reka bentuk Portal MyHEALTH adalah baik (60.0% -72.0%). Walau bagaimanapun, elemen mesra pengguna (45.9%) masih dianggap baik oleh pesakit walaupun peratusnya kurang dari 50.0% (Rajah 7).



Rajah 7: Penilaian terhadap reka bentuk Portal MyHEALTH (n=76)

5.10 Penilaian Isi Kandungan Portal MyHEALTH

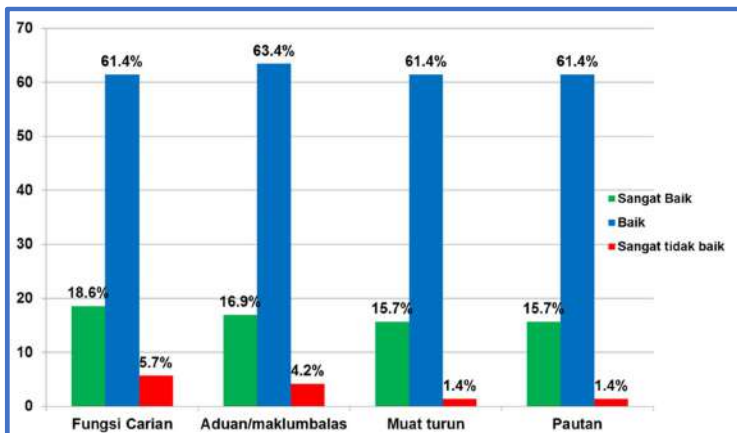
Kebanyakan pesakit berpendapat isi kandungan Portal adalah pada tahap baik (57.0 % -73.2%). Walau bagaimanapun, 28.0% pesakit menyatakan penggunaan dwi-bahasa dan penggunaan bahasa adalah di tahap sangat tidak baik (Rajah 8).



Rajah 8: Penilaian Terhadap Isi Kandungan Portal MyHEALTH (n=76)

5.11 Penilaian Ciri-ciri Portal MyHEALTH

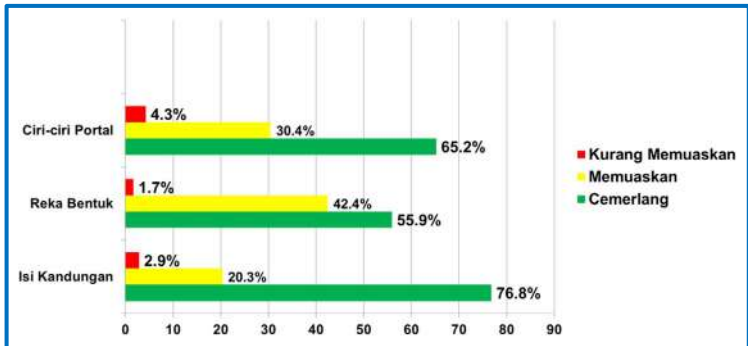
Penilaian terhadap ciri-ciri Portal oleh kebanyakan pesakit adalah di tahap baik melebihi 60.0% (Rajah 9).



Rajah 9: Penilaian Ciri-Ciri Portal Myhealth (N=76)

5.12 Penilaian Skor Keseluruhan Portal MyHEALTH

Kajian mendapati penilaian skor secara keseluruhan oleh pesakit adalah cemerlang dengan skor isi kandungan (76.8%), ciri-ciri portal (65.2%) dan rekabentuk (55.9%) (Rajah 10).



Rajah 10: Penilaian skor keseluruhan Portal MyHEALTH (n=76)

6. PERBINCANGAN

Kajian mendapati sumber utama pencarian maklumat kesihatan oleh pesakit adalah televisyen. Hasil penemuan ini selaras dengan penemuan Kajian Tinjauan Kesihatan Morbiditi Kebangsaan ke-3 (2008) dan kajian yang telah dijalankan oleh Normawati et al. (2011). Kebanyakan pesakit memilih jenis perkhidmatan berkaitan dengan artikel kesihatan, penyakit dan rawatan. Dapatan kajian ini adalah selari dengan kajian Fox et al. (2009) dan Finney et al. (2012) yang juga menunjukkan pemilihan jenis perkhidmatan yang sama.

Selain itu, tujuan pesakit melayari Portal MyHEALTH adalah untuk mencari maklumat berupa artikel berkaitan dengan kesihatan untuk diri sendiri dan keluarga di samping ia juga merupakan sumber yang boleh dipercayai (Ettel et al., 2012; Talarczyk et al., 2012; Gulliver et al., 2012). Tempoh masa yang digunakan oleh pesakit untuk melayari Portal MyHEALTH adalah antara 1 hingga 2 jam. Penemuan ini bersamaan dengan kajian yang dijalankan oleh Suruhanjaya Komunikasi Multimedia Malaysia (SKMM, 2012).

Walau bagaimanapun, terdapat halangan dalam kalangan pesakit untuk mengakses Portal MyHEALTH, antaranya; tiada kemudahan internet, akses portal kesihatan lain, tiada keperluan dan tidak tahu kegunaannya.

Dapatan kajian adalah selari dengan kajian oleh Cline dan Haynes (2001), Nielsen (2002), Hsu (2005), Ingrid (2007) dan Milewski dan Chen (2010).

Penilaian pesakit terhadap isi kandungan, reka bentuk dan ciri-ciri Portal MyHEALTH adalah pada tahap baik. Dapatan kajian ini juga adalah selari dengan kajian Fisher et al. (2009) dan Moon dan Fisher (2006).

7. KESIMPULAN

Hanya 76 (8.7%) pesakit yang telah melayari Portal MyHEALTH. Punca utama tidak melayari portal kerana tidak tahu kewujudan portal (74.8%; 665). Dalam kalangan pesakit yang tahu tentang kewujudan Portal MyHEALTH (24.1%; 211), sebanyak 63.9%(135) tidak melayari portal atas alasan tidak tahu kegunaan portal MyHEALTH (52.3%), tiada keperluan (25.8%), melayari portal kesihatan lain (21.1%) dan tidak ada kemudahan internet (0.8%). Penilaian keseluruhan pesakit dari aspek isi kandungan, reka bentuk dan ciri-ciri portal adalah pada tahap baik. Portal MyHEALTH perlu dipromosikan khusus kepada anggota KKM, untuk menggunakan/mengintegrasikan portal MyHEALTH dalam perkhidmatan mereka. Portal juga perlu dipromosikan untuk masyarakat secara menyeluruh dan berterusan bagi maklumat kesihatan am dan khusus. Kajian susulan perlu dilaksanakan bagi tujuan penambahbaikan Portal MyHEALTH.

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Konflik Kepentingan

Tiada konflik kepentingan.

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EFFECT OF INVISIBLE PILL CONTAINER ON MEDICATION ADHERENCE AND CONVENIENCE AMONG RVD (RETROVIRAL DISEASE) PATIENTS

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ABSTRAK

Ketidakpatuhan waktu pengambilan ubat merupakan punca utama kepada kegagalan rawatan Retro-viral Disease (RVD). Ini menjejaskan sasaran 90-90-90 kerana rintangan terhadap ARV (Anti-Retroviral) berlaku sekiranya pesakit tidak mematuhi waktu ubat. Antara sebab kegagalan mematuhi adalah kesulitan masa pada waktu bekerja, tertinggal ubat di rumah ketika berada di luar dan isu privasi di khalayak ramai. Namun, Pill Box konvensional mempunyai kelemahan yang menyebabkan pesakit RVD tidak membawa ubat keluar rumah. Invisible Pill Container merupakan projek yang dijalankan oleh pasukan inovasi Klinik Kesihatan Sungai Besi bertujuan untuk menambahbaik kepatuhan waktu ubat dan kualiti hidup pesakit RVD. Ia berbentuk kecil, ringan dan mudah dibawa di sisi badan. Kos seunit adalah RM 2.17. Borang kaji selidik yang menilai kepatuhan waktu dan keselesaan telah dijawab oleh pesakit RVD sebelum dan selepas mengguna Invisible Pill Container. Peratus pesakit yang lewat mengambil ubat ARV telah menurun dari 40% ke 10%. Manakala pesakit yang tertinggal dos ubat telah menurun dari 3% ke sifar. Peratus pesakit RVD yang rasa sukar mencapai ubat pada masa yang tepat, cenderung tertinggal atau lewat mengambil ubat ketika berada di luar rumah, dan tidak selesa untuk membawa ubat ARV di sisi badan telah menurun dari 26.7% ke 3.3%, 36.7% ke 6.7%, 50.0% ke 16.6% dalam masa satu bulan. Secara tidak langsung, Invisible Pill Container membantu mengurangkan risiko morbiditi dan kematian disebabkan oleh kegagalan rawatan RVD, mencapai penjimatan kos kegagalan rawatan dan sasaran 90-90-90.

Kata Kunci: *HIV, Human Immunodeficiency Virus, Invisible Pill Container, Kepatuhan Ubat, Retro-viral Disease, RVD*

ABSTRACT

Non-adherence to medication timing has been the main factor for Retro-viral Disease (RVD) treatment failure. This affects the achievement of 90-90-90 target because resistance to ARV (Anti-Retroviral) occurs when patients are non-adherence to medication timing. The reasons for non-adherence include time constraints at work, medication being left at home while patients are out and privacy issues when taking medicine in the public. However, conventional pill boxes have weaknesses that impede patients from bringing medicine out from home. Invisible Pill Container is a project run by an innovation team in Klinik Kesihatan Sungai Besi, which aims to improve adherence and quality of life of RVD patients. It is small, light and convenient to bring with. It cost RM 2.17 per unit. Questionnaires to measure medication adherence and convenience of Invisible Pill Container were answered by RVD patients before and after using the product. The percentage of patients who delayed dose of ARV has decreased from 40% to 10%, while the percentage of patients who missed dose has decreased from 3% to nil. Percentage of RVD patients that experienced difficulty in reaching medicine on time, tend to miss or delay medication when out from home and not feeling comfortable bringing medicine along have reduced from 26.7% to 3.3%, 36.7% to 6.7%, 50.0% to 16.6% in one month. Invisible Pill Container indirectly helps to reduce risk of morbidity and mortality due to RVD treatment failure, reduce cost from treatment failure and achieve 90-90-90 target.

Keywords: *HIV, Human Immunodeficiency Virus, Invisible Pill Container, Medicine Adherence, Retro-viral Disease, RVD*

1. PENGENALAN

Tema Hari AIDS Sedunia 2012 adalah *Getting to Zero: zero new Human Immunodeficiency Virus (HIV) infections, zero deaths from Acquired Immunodeficiency Syndrome (AIDS)-related illness, zero discrimination* (World Health Organization, 2012). Dalam konteks ini, Malaysia telah menerima pakai sasaran UNAIDS (Joint United Nations Programme on HIV and AIDS) yang menuju ke arah 90-90-90 menjelang 2020, iaitu “90% of

key populations tested and know their results, 90% of those detected HIV (Human Immunodeficiency Virus) positive placed on antiretroviral (ARV) therapy, and 90% of these adhering to ART with suppressed viral load” (Ngadiman et al., 2015). Sasaran ini dijangka menamatkan pandemik *Retroviral Disease* (RVD) menjelang tahun 2030 (Myhre & Sifris, n.d.). Namun, pencapaian Malaysia adalah hanya 86-55-97 pada tahun 2018 (Suleiman & Chai Phing Tze, 2014).

Pengurusan rintangan ubat ARV adalah kritikal bagi mencapai sasaran 90-90-90 (World Health Organization, 2019). Rintangan terhadap ubat ARV boleh berlaku sekiranya pesakit tidak mengambil ubat pada waktu yang tepat dengan konsisten setiap hari (Hasim, 2015; Wahid, 2014; Roshazad & Adnan, 2020). Dr. Monica Gandhi, pengarah perubatan klinik HIV di University of California San Francisco (UCSF), berpendapat bahawa ketidakpatuhan kepada waktu pengambilan ubat merupakan kelemahan kepada kegagalan rawatan RVD (Brink, 2018). Ketidakpatuhan telah dikaitkan dengan jangkitan akibat rintangan ubat, kemerosotan penyakit, dan kematian (Bangsberg et al., 2001; García de Olalla et al., 2002; Hogg et al., 2002). Kajian mendapati bahawa ketidakpatuhan kepada ubat menyebabkan kesihatan terjejas secara mendadak (Peterson et al., 2003). Kegagalan mengambil ubat dengan betul telah membelanjakan kos sistem penjagaan kesihatan sebanyak \$100 billion hingga \$289 billion setahun di Amerika Syarikat (Peterson et al., 2003; Viswanathan et al., 2012).

Pesakit RVD digalakkan untuk mengambil ubat pada masa yang sama dan tepat setiap hari. Mereka perlu mengambil ubat dalam jangka masa dua jam sahaja tanpa terlalu awal ataupun terlalu lewat (Pebody, 2019). Seperti dijelaskan di Gambar 4, jika pesakit RVD tidak mengambil ubat ARV pada waktu yang tepat setiap hari, risiko rintangan ubat akan meningkat (Wahid, 2014). Rintangan ubat menyebabkan ARV *first line* tidak berkesan terhadap penyakit RVD dan kegagalan rawatan. Dalam keadaan ini, ARV *second line* yang berkos tinggi dan mempunyai kesan sampingan lebih teruk dan berlarutan terpaksa dipreskrib (Hasim, 2015). Selain daripada itu, kegagalan rawatan juga akan meningkatkan risiko infeksi oportunistik yang akan menambah kos rawatan kementerian kesihatan dan menyebabkan kematian pesakit (Volny-anne, 2020).

Kepatuhan kepada waktu ubat ARV dengan sepenuhnya boleh mengurangkan risiko rintangan ubat ARV (Friedland & Williams, 1999). Namun, kajian sistematik terdapat beberapa faktor yang menghalang kepatuhan ubat secara konsisten dalam negara maju dan negara membangun

(Mills et al., 2006). Faktor-faktor tersebut adalah stigma sosial, kebimbangan bahawa status RVD terdedah, perlupaan, kurang pemahaman kepada manfaat ubat, rejimen yang rumit dan berada di tempat yang jauh daripada tempat letak ubat (Bukanya et al., 2019; Mills et al., 2006).

Pencarian kaedah yang lebih baik untuk membantu pesakit mengambil ubat adalah bidang penyelidikan yang penting bagi pesakit RVD (Brink, 2018). *Pill Box* merupakan benda yang penting kepada pesakit RVD supaya mereka ingat mengambil ubat ketika masa ubat tiba (Brink, 2018). Walau bagaimanapun, kebanyakan *Pill Box* di pasaran mempunyai kelemahan. *Pill Box* konvensional terlalu besar dan tidak sesuai untuk dibawa di sisi badan (Clifton et al., 2013; Lisby et al., 2005). Kajian sebelumnya berpendapat bahawa saiz dan kemudahan merupakan aspek yang penting semasa mencipta *Pill Box* (Huang et al., 2014; Ray, 2014).

Klinik Kesihatan Sungai Besi merupakan klinik kesihatan bawah Kementerian Kesihatan Malaysia yang mempunyai 65 orang pesakit RVD yang mengambil ubat ARV. Pasukan RVD telah diwujudkan untuk memberi perkhidmatan kepada pesakit-pesakit RVD yang mendapatkan rawatan di klinik. Unit-unit yang terlibat dalam rawatan RVD adalah Unit Pegawai Perubatan, Unit Kejururawatan, Unit Farmasi, Unit Penolong Pegawai Perubatan dan Non-Profit Organisation (NGO) Malaysian AIDS Council.

Unit Pegawai Perubatan memainkan peranan untuk memberi rawatan kepada pesakit RVD. Unit Kejururawatan membantu pegawai perubatan dalam process rawatan RVD. Unit Farmasi mendispensekan ubat dan memberi kaunseling ubat ARV kepada pesakit RVD. Unit Penolong Pegawai Perubatan memberi khidmat nasihat kepada pesakit RVD. Manakala, NGO Malaysian AIDS Council memberi sokongan dan informasi kepada pesakit RVD supaya mereka boleh menjalani kehidupan secara normal.

Masalah ketidakpatuhan pengambilan ubat di kalangan pesakit RVD di Klinik Kesihatan Sungai Besi merupakan masalah utama semasa merawat penyakit RVD. Oleh sebab itu, wakil dari unit-unit di Klinik Kesihatan Sungai Besi bekerjasama untuk menyelesaikan masalah tersebut dengan piagam pelanggan untuk meningkat kualiti hidup pesakit RVD dan menambahbaikkan kepatuhan kepada waktu pengambilan ubat ARV dan mengurangkan kos perubatan pesakit RVD.

Invisible Pill Container merupakan projek inovasi berkategori produk yang “*Patient-centred*”. Ia berbentuk kecil, ringan dan mudah dibawakan ke mana-mana kerana ia senang dipasang pada rantai kunci dan telefon bimbit sebagai hiasan gantung dan sebagai penyamaran warna

barang peribadi (Gambar 7). Dengan ciri-ciri tersebut, kami percaya bahawa *Invisible Pill Container* boleh meningkatkan kepatuhan pesakit kepada waktu pengambilan ubat. Bentuk seperti hiasan gantung rantai kunci dan telefon bimbit juga memberikan keyakinan dan keselesaan kepada pesakit RVD untuk membawa ubat ARV di sisi badan dan mengambil ubat sekiranya tiba waktu pengambilan ubat. Faktor ini boleh meningkatkan keberkesanan rawatan RVD.

Tujuan projek *Invisible Pill Container* adalah menambahbaikkan kepatuhan kepada waktu pengambilan ubat ARV dan meningkatkan kualiti hidup pesakit RVD. Manakala, objektif kajian kami ialah untuk mengetahui kesan *Invisible Pill Container* terhadap kepatuhan waktu ubat dan keselesaan membawa ubat di kalangan pesakit RVD Klinik Kesihatan Sungai Besi.

2. PELAKSANAAN PROJEK

Projek inovasi tersebut dibangunkan ketika kursus inovasi di Pejabat Kesihatan Cheras pada tahun 2018. Perbincangan tentang prototaip dijalankan di dalam bilik mesyuarat Klinik Kesihatan Sungai Besi dan juga dalam kumpulan elektronik dari November 2018 hingga September 2019. Kumpulan elektronik projek *Invisible Pill Container* telah ditubuh pada 12 November 2018.

Ubat-ubat ARV telah diukur agar ubat tersebut boleh dimasukkan ke dalam prototaip (Gambar 3). Pesakit RVD ditemubual untuk mendapatkan pendapat mereka tentang prototaip *Invisible Pill Container*. Setelah prototaip pertama dikeluarkan dalam tahun 2018 (Gambar 5), ahli kumpulan menambahbaikkan prototaip tersebut dari segi saiz, bentuk dan kos. Bahan untuk prototaip pertama adalah plastik seperti polyethylene, polystyrene, polypropylene and polyvinyl chloride, di mana bahan tersebut sesuai dan selamat untuk dijadikan bekas ubat (Plastic Containers for Pharmaceuticals Plastic Containers for Medicines and Cosmetics, 2020).

Namun, bahan plastik lembik dan tidak tahan lasak. Prototaip *Invisible Pill Container* kedua telah dicipta pada Januari 2019 tetapi saiznya terlalu besar dan tidak mencapai perlindungan privasi pesakit RVD. Oleh itu, prototaip *Invisible Pill Container* ketiga yang mempunyai saiz berpatutan dicipta pada April 2019. Namun, bentuk prototaip ketiga masih tidak dapat melindungi privasi pesakit RVD kerana ia berbentuk seperti *Pill Box* konvensional yang sering dijumpa di pasaran. Akhir sekali, prototaip yang bersaiz kecil dan bentuk yang merupakan hiasan gantung kunci telah disetujui

oleh semua ahli kumpulan. Evolusi prototaip *Invisible Pill Container* adalah seperti Gambar 6.

Ciri-ciri fizikal prototaip terakhir *Invisible Pill Container* adalah seperti dalam Gambar 2. Bahan diguna adalah aluminium yang ringan supaya senang dibawa. Aluminium didapati selamat digunakan sebagai bekas farmaseutikal kerana ia kalis air, kalis lembap, kalis udara dan tidak menggalakkan pertumbuhan bakteria (The Future Protects of Aluminium, 2018). Bentuk *Invisible Pill Container* adalah serupa tiub yang kecil. Penutup yang “twist-lock” menjadikan produk tersebut kalis air. Warna *Invisible Pill Container* boleh dipilih berdasarkan kesukaan pesakit (Gambar 1). Kos untuk satu unit *Invisible Pill Container* ialah RM 2.17. Pejabat Kesihatan Cheras menaja kos projek ini.

Penyelidikan telah dijalankan terhadap *Invisible Pill Container* setelah prototaip akhir disetujui oleh semua ahli. Soal selidik terhadap projek ini telah dijawab oleh 30 orang pesakit RVD di Klinik Kesihatan Sungai Besi sebelum dan selepas diberi *Invisible Pill Container* selama satu bulan. *Invisible Pill Container* diberi dengan percuma. Pesakit diminta memasang terus *Invisible Pill Container* pada barang peribadi yang mereka tidak akan lupa membawa keluar rumah, seperti dompet, kunci kereta, telefon bimbit dan barang peribadi lain-lain. Temubual pesakit RVD dijalankan di dalam bilik yang senyap dan privasi pesakit dilindungi. Data pesakit direkod tanpa mendedahkan identiti. Subjek dipilih dengan cara persampelan konvenien. Analisis deskriptif telah dijalankan.

Soalan soal selidik kajian ini merangkumi dua bahagian utama, iaitu kepatuhan waktu ubat dan keselesaan membawa ubat. Pesakit diminta untuk memberitahu kekerapan lewat mengambil ubat dan kekerapan tertinggal ubat dalam satu bulan yang lepas. Pesakit juga diminta untuk menjawab tahap kesetujuan bagi kesukaran untuk mencapai ubat ARV pada masa yang tepat, cenderung tertinggal atau lewat mengambil ubat ketika berada di luar rumah, dan tidak selesa untuk membawa ubat ARV di sisi badan.

3. DAPATAN / KEPUTUSAN KAJIAN

Sebelum *Invisible Pill Container* diguna oleh pesakit RVD, dapatan soal selidik terdapat 40% pesakit RVD di bawah rawatan ARV di Klinik Kesihatan Sungai Besi tidak mengambil ubat ARV pada masa yang ditetapkan (Carta 1) dan 3.3% pesakit pernah tertinggal dos ubat pada dalam satu bulan yang lepas (Carta 3).

Semasa bertemu bual dengan pesakit RVD di Klinik Kesihatan Sungai Besi, kami telah meringkaskan sebab-sebab ketidakpatuhan kepada tiga sebab utama, iaitu tidak dapat mencapai ubat pada masa yang tepat, lebih cenderung untuk tertinggal atau terlewat mengambil ubat ketika berada di luar rumah dan tidak selesa untuk membawa ubat di sisi badan. Data borang kaji selidik kami menyatakan bahawa 26.6% pesakit RVD menghadapi kesukaran untuk mencapai ubat ARV pada masa yang tepat (Carta 5). Terdapat 36.7% pesakit RVD mengaku bahawa mereka lebih cenderung untuk tertinggal atau terlewat mengambil ubat ARV ketika berada di luar rumah (Carta 7). Terdapat 50% pesakit rasa tidak selesa untuk membawa ubat ARV di sisi badan (Carta 9). Data di atas telah didapatkan sebelum *Invisible Pill Container* diperkenalkan.

Selepas mengguna *Invisible Pill Container* selama satu bulan, peratus pesakit yang tidak mematuhi waktu ubat ARV telah berkurang dari 40% kepada 10% (Carta 2), manakala peratus pesakit yang tertinggal ubat ARV telah meurun dari 3.3% kepada sifar (Carta 4). Sementara itu, peratus pesakit yang sukar mencapai ubat ARV pada masa yang tepat berkurang dari 26.7% kepada 3.3% (Carta 6). Selain itu, hanya 6.7% pesakit RVD yang mengguna *Invisible Pill Container* mengaku bahawa mereka cenderung tertinggal atau lewat mengambil ubat ARV ketika berada di luar (Carta 8), berbanding dengan 36.6% pesakit yang sebelum mengguna *Invisible Pill Container*. Peratus pesakit yang tidak selesa untuk membawa ubat ARV di sisi juga telah berkurang dari 50.0% kepada 16.7% (Carta 10).

Di samping itu, sebanyak 96.7% pesakit RVD berpendapat bahawa *Invisible Pill Container* membantu mereka untuk mengambil ubat pada masa yang tepat setiap hari (Carta 11). 93.3% pesakit RVD rasa *Invisible Pill Container* memberi kesenangan ketika mengambil ubat (Carta 12). 90.0% pesakit rasa selesa untuk membawa *Invisible Pill Container* di sisi badan mereka (Carta 13). Lebih penting lagi, terdapat 66.7% pesakit RVD rasa *Invisible Pill Container* sangat berguna dan 23.3% rasa berguna untuk membantu dari segi pengambil ubat pada masa yang tepat dengan selesa (Carta 14).

4. PERBINCANGAN

Untuk mencapai sasaran 90-90-90 yang dijangka menamatkan pandemik RVD menjelang tahun 2030 (Myhre & Sifris, n.d.), Kementerian Kesihatan Malaysia memastikan semua pesakit RVD menerima rawatan ARV (Suleiman

& Chai Phing Tze, 2014). Kepatuhan kepada ubat ARV amat penting untuk menurunkan risiko kegagalan rawatan (Brink, 2018). Walau demikian, peratus pesakit RVD yang mematuhi waktu ubat di Klinik Kesihatan Sungai Besi tidak memuaskan kerana terdapat seramai 40% pesakit gagal mengambil ubat pada masa yang tepat. Data ini boleh dibanding dengan meta-analisis Amerika Syarikat yang menyatakan bahawa hanya 55% pesakit RVD yang mencapai kepatuhan ubat dalam kalangan 17,573 orang pesakit. Peratus ini juga tidak memuaskan bagi penyelidik yang menjalankan kajian meta-analisis tersebut (Schaecher, 2013) *poor adherence to treatment has the potential to impact outcomes on multiple levels. Poor adherence to antiretroviral therapy (ART).*

Kajian kami juga mendapati bahawa 3.3% pesakit telah tertinggal ubat dalam satu bulan yang lepas. Walau demikian, kami tetap mengendahkan data ini kerana risiko penularan jangkitan RVD wujud sekiranya muatan virus meningkat akibat ketidakpatuhan kepada ubat ARV. Pesakit yang sering tinggalkan dos ubat ARV mengalami risiko kegagalan rawatan yang tinggi (Brink, 2018). Kegagalan virologi merupakan salah satu kategori kegagalan rawatan yang ditakrifkan sebagai kegagalan untuk mencapai muatan virus kurang daripada 1000 *copies per mililiter* dengan rawatan ARV (Choy, 2017). Risiko penularan penyakit RVD meningkat dengan mendadak dan stabil apabila muatan virus meningkat (Hollander, 2001). Di samping ini, tiga kajian terkini, iaitu PARTNER, Opposites Attract dan PARTNER2, melaporkan bahawa kadar penularan penyakit RVD antara pasangan seks serodiscordant yang menjalankan aktiviti seks tanpa perlindungan adalah rendah selagi pasangan yang HIV-positif mencapai penindasan virus (Bavinton et al., 2018; Rodger et al., 2016, 2019) *SETTING, AND PARTICIPANTS The prospective, observational PARTNER (Partners of People on ART-A New Evaluation of the Risks. Oleh yang demikian, kami berpendapat bahawa kepatuhan kepada ubat ARV amat penting bukan sahaja bagi kesihatan pesakit RVD sendiri, tetapi juga penting bagi mengurangkan risiko penularan jangkitan kepada orang lain, serta mengurangkan kos rawatan dan perubatan RVD yang ditanggung oleh Kementerian Kesihatan Malaysia.*

Penggunaan *Pill Box* telah dicadangkan kepada pesakit yang mengambil ubat ARV (Pebody, 2020). *Pill Box Organiser* didapati meningkatkan kepatuhan kepada ubat sebanyak 4-5% dalam kalangan populasi bandar miskin (Petersen et al., 2007). Namun, kami berpendapat

bahawa *Pill Box* konvensional selalunya besar, berat, tidak dapat dimasukkan ke dalam dompet, tidak dapat dipasang pada rantai kunci dan rantai telefon bimbit, dan tidak memberi privasi kepada pesakit. Ini menyebabkan pesakit RVD rasa bimbang terhadap sosial stigma dan rasa tiada kemudahan untuk membawa *Pill Box* konvensional di sisi badan. Kami juga membuat postulat bahawa kelemahan *Pill Box* konvensional tersebut menyebabkan sesetengah pesakit RVD di Klinik Kesihatan Sungai Besi sukar mencapai ubat pada masa yang tepat semasa menjalankan aktiviti harian, cenderung untuk tertinggal atau terlewat dose ubat kerana tidak membawa ubat ketika di luar rumah dan tidak selesa membawa ubat di sisi badan disebabkan oleh stigma sosial. Di samping itu, kajian sebelumnya berpendapat sama dengan postulat kami. Kajian tersebut mengatakan bahawa *Pill Box* yang besar tidak sesuai sentiasa dibawa di sisi badan disebabkan oleh stigma sosial (Bachman et al., 2013; Clifton et al., 2013; Lisby et al., 2005) China, used Wisepill for one ART medication for one month. We monitored device use and adherence and explored acceptability of the device among patients. Mean adherence was 89.2% (SD 10.6%).

Kelemahan *Pill Box* konvensional menghalang pesakit daripada membawa ubat ARV di sisi badan dan pesakit sukar mematuhi waktu pengambilan ubat dengan tepat. Pendapat ini disetujui oleh kajian Bachman et al. (2003) yang menyatakan bahawa pesakit RVD tidak suka membawa *Pill Box* yang besar di sisi badan kerana ia menyebabkan ketidakselesaian semasa membawa *Pill Box* di depan orang awam. Dalam kajian tersebut pesakit RVD juga bimbang bahawa status HIV terdedah jika mereka membawa *Pill Box* yang besar di sisi badan.

Setelah menganalisa masalah di atas, kami mendapati bahawa populasi zaman ini sentiasa membawa dompet, telefon bimbit dan kunci kereta ketika keluar rumah. Kajian Ichikawa et al. (2005) mendapati bahawa perempuan sering membawa telefon bimbit di dalam beg manakala lelaki sering membawa telefon bimbit di dalam poket. Kami juga berpendapat bahawa jika mempunyai *Pill Box* yang kecil, ringan dan boleh dipasang ke telefon bimbit atau kunci, pesakit akan lebih mematuhi kepada jadual pengambilan ubat yang tepat tanpa menghadapi stigma sosial. Pendapat ini disokong oleh Bachman et al. (2003) yang mengatakan bahawa sesetengah pesakit RVD lebih suka *Pill Box* yang kecil dan tidak menjolok mata supaya status HIV mereka tidak mudah terdedah. Selain itu, salah satu punca pesakit RVD tidak mengambil ubat ARV pada masa yang tepat adalah kerana pesakit

enggan membawa *Pill Box* yang besar di sisi badan ketika keluar rumah. Sesetengah pesakit mengambil ubat ARV hanya ketika berada di rumah. Ini akan menyebabkan kelewatan pengambilan ubat ARV jika pesakit tidak sempat pulang ke rumah sebelum waktu ubat tiba. Oleh yang demikian, *Pill Box* yang senang dibawa di sisi badan pesakit dan yang melindungi status RVD amat diperlukan di kalangan pesakit yang berkenaan. Bentuk *Pill Box* konvensional perlu diperbaiki demi mencapai ciri-ciri tersebut.

Sejak mengguna *Invisible Pill Container*, peratus pesakit RVD di Klinik Kesihatan Sungai Besi yang rasa sukar mencapai ubat pada masa yang tepat, cenderung tertinggal atau terlewat dos ubat ketika di luar rumah dan tidak selesa membawa ubat di sisi badan telah menurun secara mendadak dalam masa satu bulan. Pesakit RVD rasa lebih mudah untuk membawa ubat ARV di sisi badan mereka kerana *Invisible Pill Container* yang kecil boleh digantung sebagai hiasan pada telefon bimbit, kunci dan barang peribadi lain-lain. Selain itu, *Invisible Pill Container* yang tidak menjolok mata memberi keyakinan dan keselesaan kepada pesakit RVD untuk membawa ubat keluar rumah tanpa bimbang terhadap sosial stigma. Ini sekaligus mengurangkan risiko pesakit tertinggal dan terlewat mengambil ubat. Dapatan ini disokong oleh penyelidik di Amerika Syarikat dan Afrika Selatan yang mengatakan bahawa *Pill Box* akan menjadi lebih baik jika saiznya kecil (Bionghi et al., 2018; Hayes et al., 2006). Kajian di Cina juga setuju dengan kemudahan *Pill Box* yang mempunyai saiz kecil dan berciri fizikal yang tidak menjolok mata supaya pesakit RVD rasa selesa untuk membawa *Pill Box* tersebut keluar rumah (Bachman et al., 2013). Selain itu, satu kajian mengenai pesakit pemindahan buah pinggan berpendapat bahawa *Pill Box* yang kecil boleh dibawa oleh pesakit dan membantu pesakit mengatur jadual ubat dan patuh kepada masa ubat-ubatan (Zelikovsky et al., 2008).

Dengan meningkatkan kepatuhan kepada waktu ubat, kami menjangka bahawa *Invisible Pill Container* boleh mengurangkan kos rawatan RVD dan kos komplisi RVD secara tidak langsung. Jangkaan ini berdasarkan kepada kajian sebelumnya yang mengatakan bahawa 4% peningkatan kepatuhan ubat ARV telah dikaitkan dengan penurunan muatan virus sebanyak 0.12 log₁₀ copies per mililiter (Bangsberg et al., 2000) dan penurunan risiko AIDS sebanyak 11% (Bangsberg, 2001). Di samping itu, Goldie et al. (2003) mendapati bahawa peningkatan kadar penindasan virus RVD sebanyak 14.5% adalah sepadan dengan pengurangan kadar kegagalan rawatan RVD sebanyak 20% setiap bulan. Petersen et al. (2007) berpendapat bahawa

penambahbaikan dalam kepatuhan ubat dan penindasan mungkin berkaitan dengan pengurangan kos untuk meningkatkan kualiti hidup pesakit RVD.

5. KESIMPULAN

Dengan terciptanya *Invisible Pill Container* ini, kepatuhan kepada waktu pengambilan ubat ARV dan kualiti hidup pesakit RVD boleh ditingkatkan. *Invisible Pill Container* juga memberi kesan yang positif dari segi menambahbaikan kepatuhan ubat ARV dan keselesaan membawa ubat di sisi badan di kalangan pesakit RVD Klinik Kesihatan Sungai Besi.

Projek *Invisible Pill Container* memberi manfaat dari segi tiga tahap: individu, masyarakat dan kementerian. Manfaat individu kerana ia meningkatkan kepatuhan ubat dan kualiti hidup pesakit RVD. Di samping mengelakkan stigma masyarakat dan mengurangkan risiko penularan penyakit RVD, kementerian kesihatan juga dapat menjimatkan kos perubatan akibat komplikasi RVD dan mencapai sasaran 90-90-90 yang dijangka menamatkan pandemik RVD menjelang tahun 2030.

Memandangkan kos projek yang berpatutan, kami bercadang untuk mengedarkan *Invisible Pill Container* kepada pesakit RVD yang menerima rawatan ubat ARV supaya kepatuhan ubat dicapai tanpa menjejaskan kualiti hidup pesakit. Selain itu, *Invisible Pill Container* juga boleh direplikasi pada penyakit yang memerlukan pengambilan ubat pada masa yang tetap dan tepat setiap hari, seperti Tuberculosis yang memerlukan tablet Akurit-2 dan Akurit-4, dan pesakit splenektomi yang memerlukan tablet Penicillin.

Ciri-ciri fizikal dan fungsi *Invisible Pill Container* boleh ditambahbaikan lagi. Kajian yang lebih lanjut boleh dijalankan di atas *Invisible Pill Container* atau konsep *Invisible Pill Container* dengan sample yang lebih luas seperti merangkumi bilangan subjek yang lebih ramai, pesakit-pesakit dari fasiliti atau institut lain, penyakit-penyakit infeksi lain dan jangka masa yang lebih panjang. Selain itu, penyelidik juga boleh mengaitkan penggunaan *Invisible Pill Container* dengan bacaan teknikal untuk menilai kepatuhan ubat dan perkembangan penyakit RVD seperti kadar kepatuhan ubat, muatan virus dan kiraan CD4. Akhirnya, soal selidik yang telah divalidasikan juga boleh diguna untuk menilai keberkesanan *Invisible Pill Container* dari segi kepuasan pesakit.

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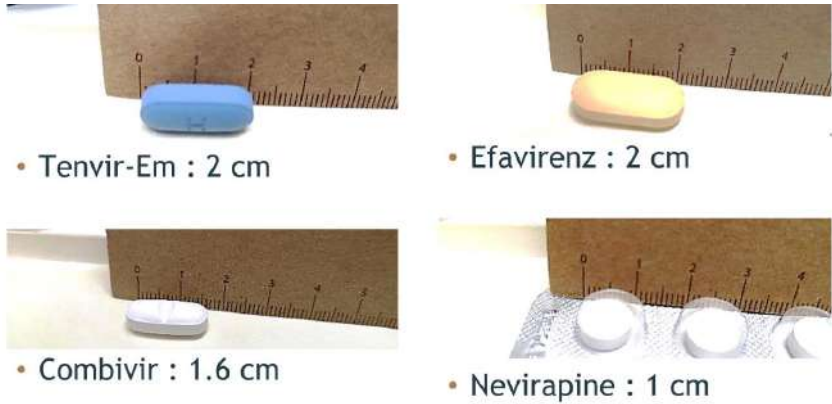
LAMPIRAN



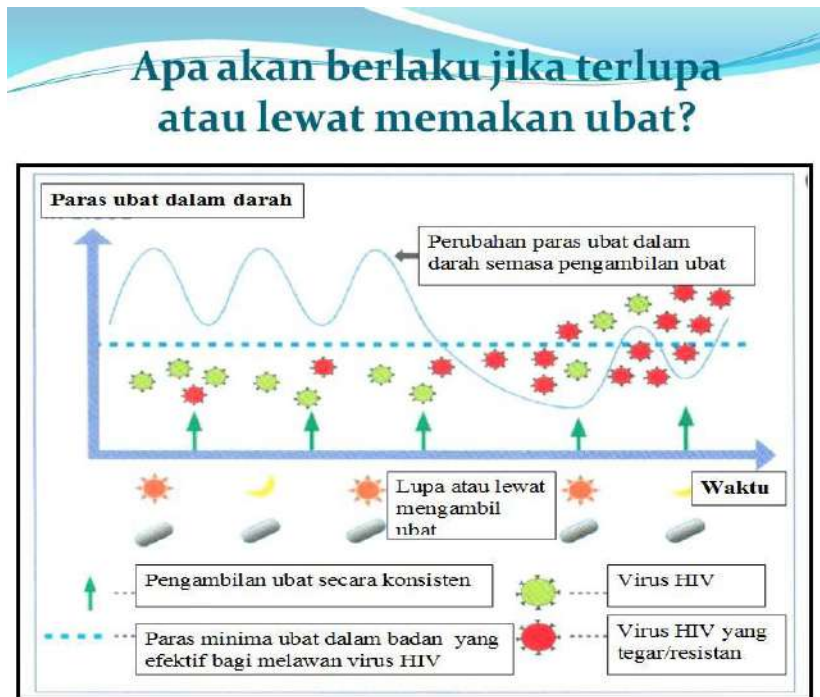
Gambar 1. Warna Invisible Pill Container



Gambar 2. Ciri-ciri Fizikal Invisible Pill Container



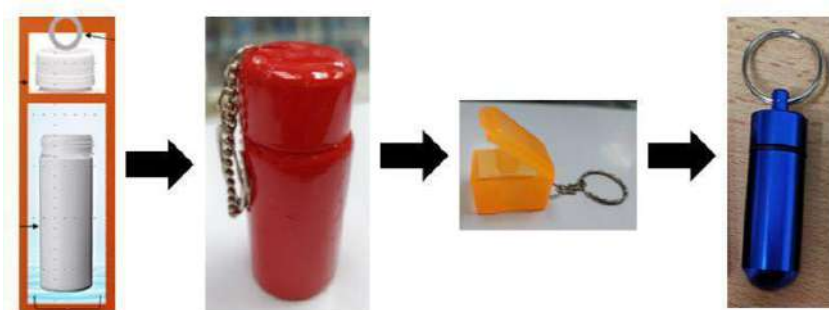
Gambar 3. Saiz ubat ARV di klinik kesihatan



Gambar 4. Rintangan berlaku jika ubat ARV lewat diambil (Wahid, 2014)



Gambar 5. Prototaip Pertama Invisible Pill Container

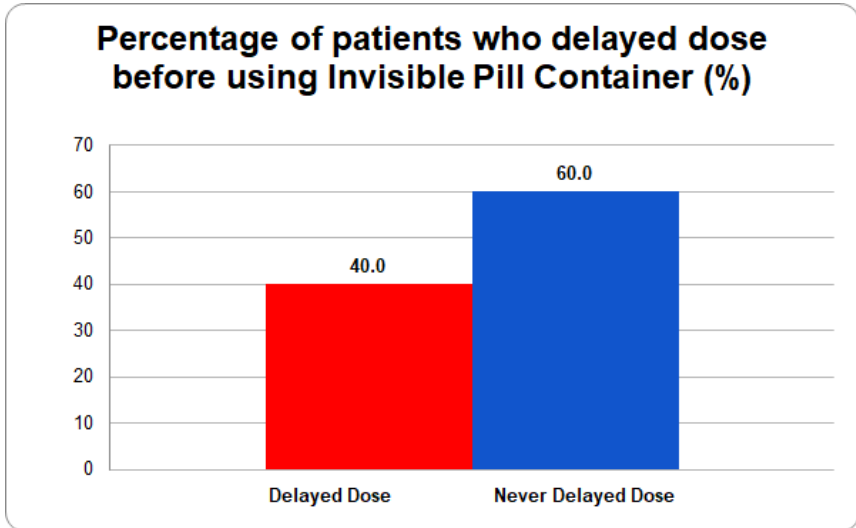


Gambar 6. Evolusi prototaip Invisible Pill Container

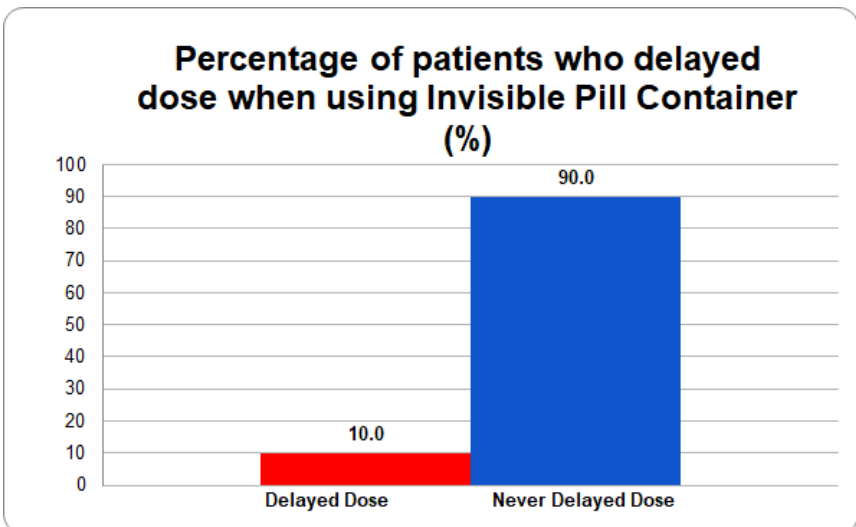


Gambar 7. Invisible Pill Container boleh dijadikan penyamaran warna barang

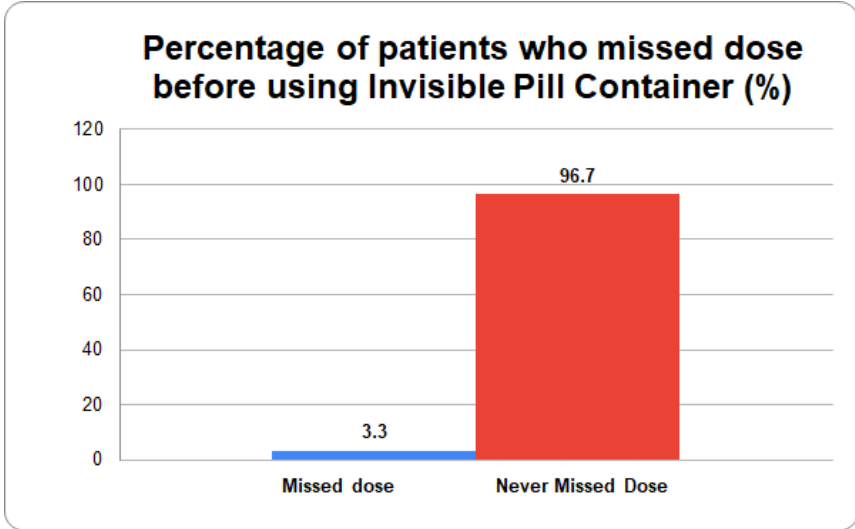
peribadi pesakit dan juga hiasan gantung



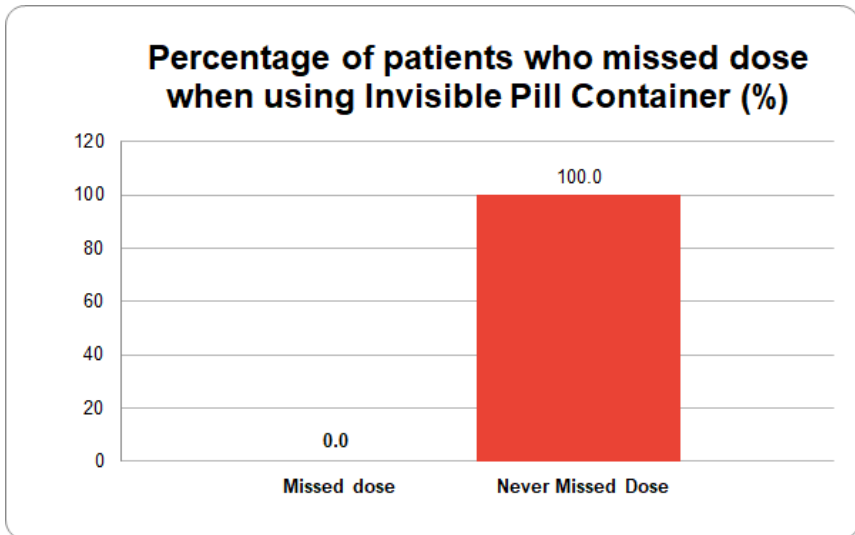
Carta 1. Peratus pesakit RVD yang lewat mengambil ubat ARV dalam satu bulan yang lepas sebelum mengguna Invisible Pill Container



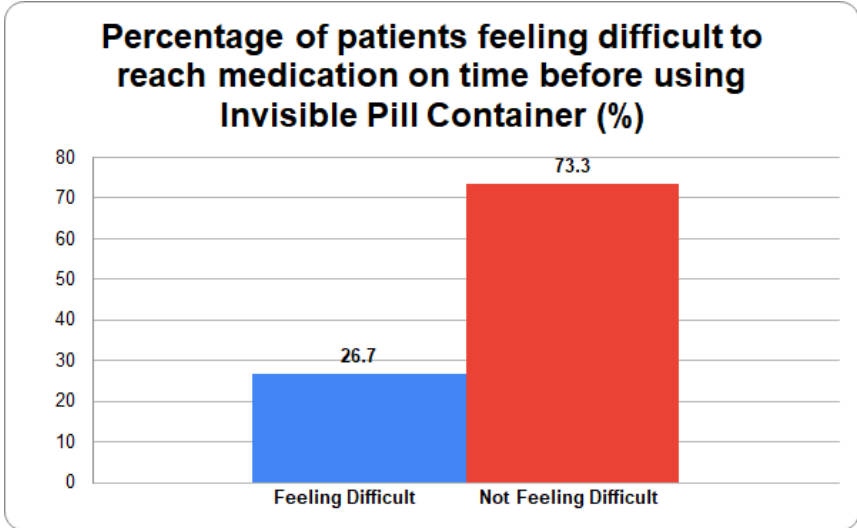
Carta 2. Peratus pesakit RVD yang lewat mengambil ubat ARV dalam satu bulan yang lepas semasa mengguna Invisible Pill Container



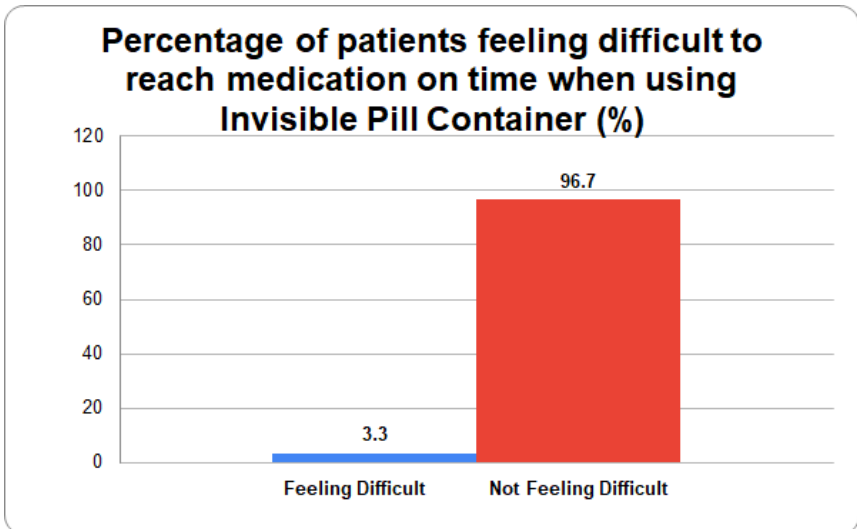
Carta 3. Peratus pesakit RVD yang tertinggal dos ubat dalam satu bulan yang lepas sebelum mengguna Invisible Pill Container



Carta 4. Peratus pesakit RVD yang tertinggal dos ubat dalam satu bulan yang lepas semasa mengguna Invisible Pill Container

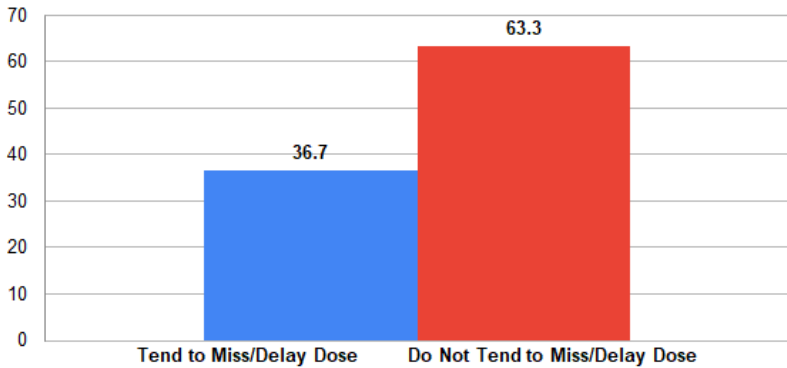


Carta 5. Peratus pesakit RVD menghadapi kesukaran untuk mencapai ubat ARV pada masa yang tepat sebelum mengguna Invisible Pill Container



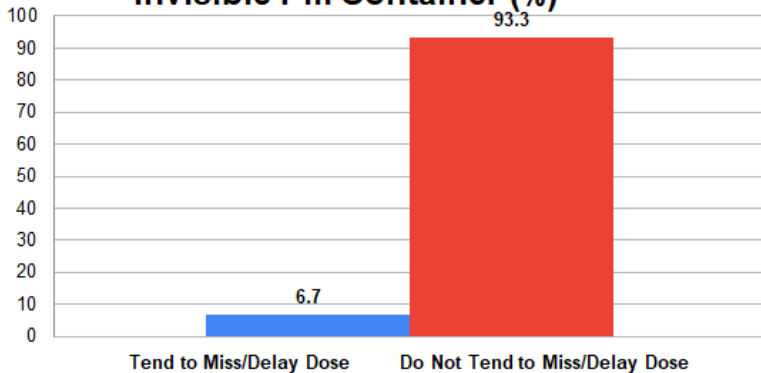
Carta 6. Peratus pesakit RVD menghadapi kesukaran untuk mencapai ubat ARV pada masa yang tepat semasa mengguna Invisible Pill Container

Percentage of patients who tend to miss/delay dose at outside before using Invisible Pill Container (%)

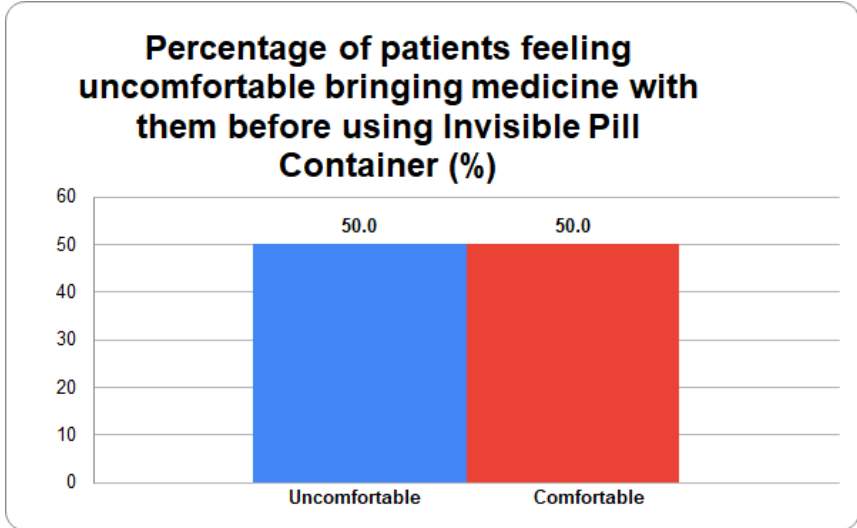


Carta 7. Peratus pesakit RVD yang cenderung tertinggal atau lewat mengambil ubat ARV ketika berada di luar sebelum mengguna Invisible Pill Container

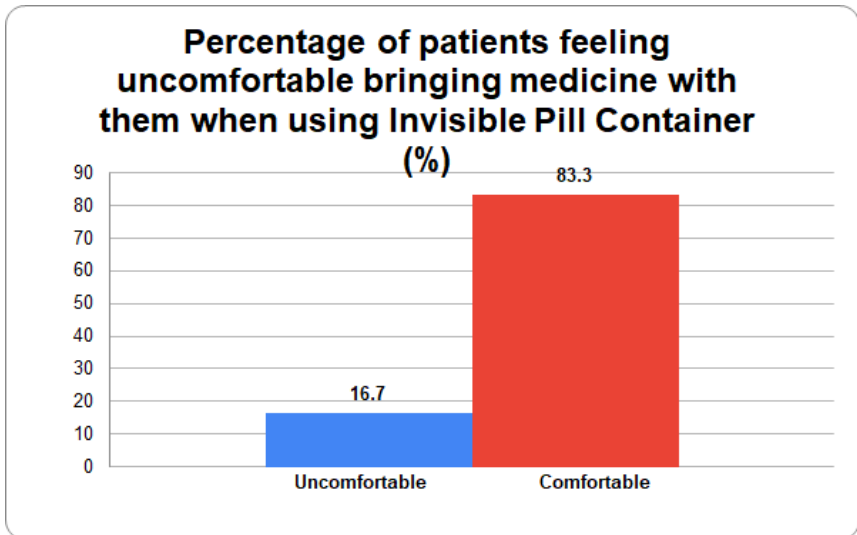
Percentage of patients who tend to miss/delay dose at outside when using Invisible Pill Container (%)



Carta 8. Peratus pesakit RVD yang cenderung tertinggal atau lewat mengambil ubat ARV ketika berada di luar semasa mengguna Invisible Pill Container

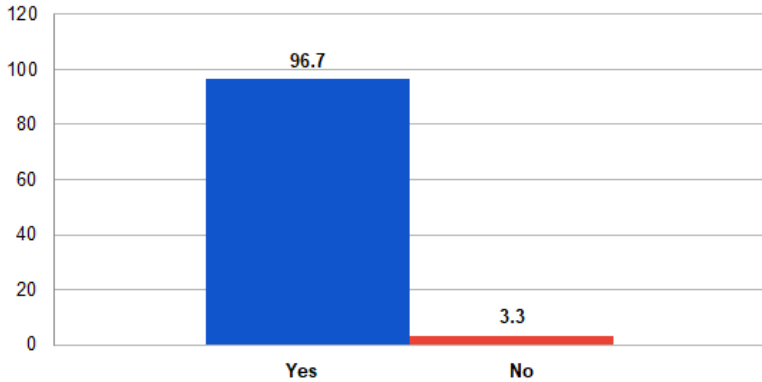


Carta 9. Peratus pesakit RVD yang rasa tidak selesa untuk membawa ubat ARV di sisi badan sebelum mengguna Invisible Pill Container



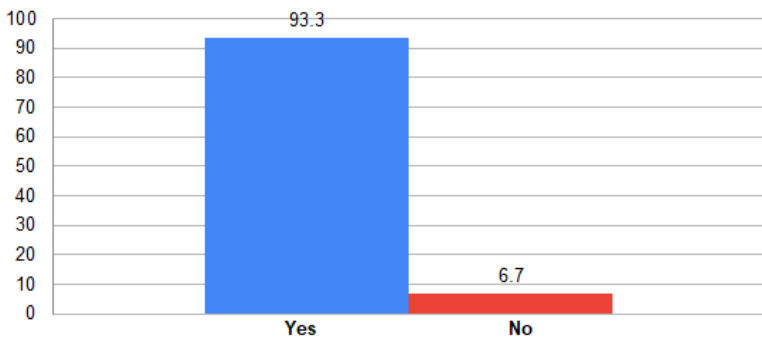
Carta 10. Peratus pesakit RVD yang rasa tidak selesa untuk membawa ubat ARV di sisi badan semasa mengguna Invisible Pill Container

Invisible Pill Container helps to take medicine on time everyday (%)

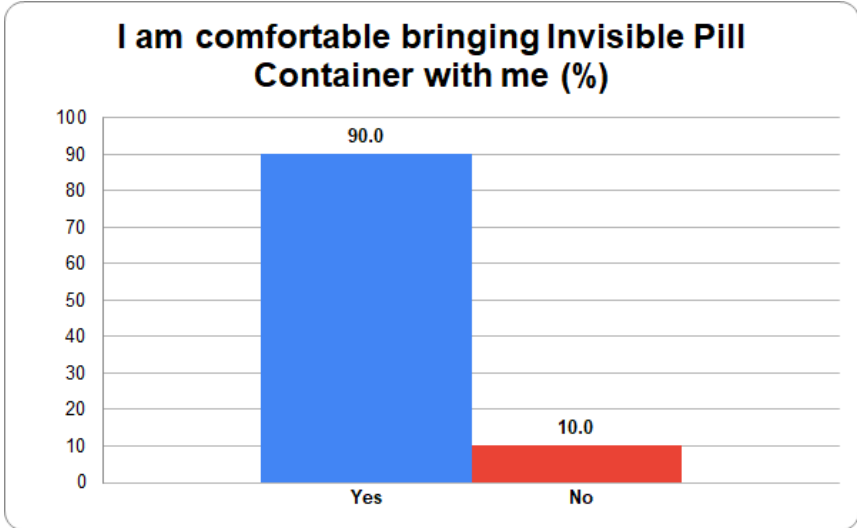


Carta 11. Peratus pesakit yang rasa bahawa Invisible Pill Container membantu mereka untuk mengambil ubat pada masa yang tepat setiap hari

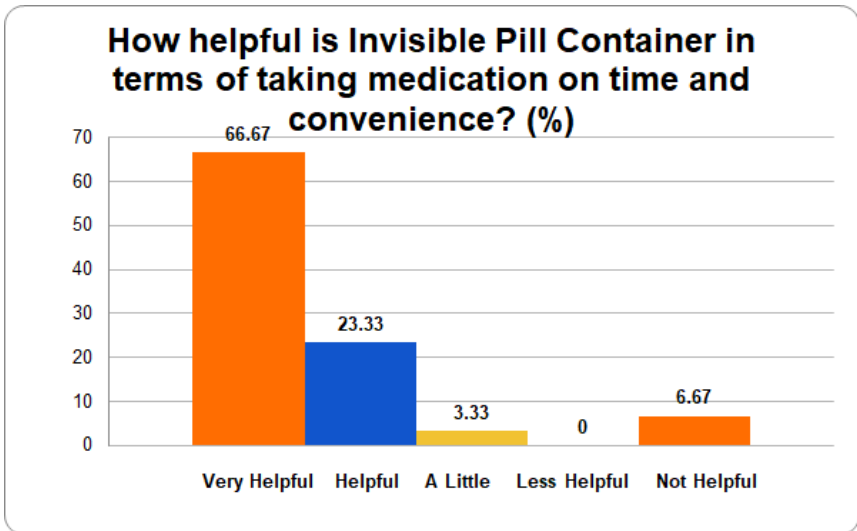
Invisible Pill Container provides convenience when taking medication (%)



Carta 12. Peratus pesakit RVD yang rasa Invisible Pill Container memberi kemudahan ketika mengambil ubat



Carta 13. Peratus pesakit yang rasa selesa untuk membawa Invisible Pill Container di sisi badan



Carta 14. Adakah Invisible Pill Container membantu anda dari segi pengambilan ubat pada masa yang tepat setiap hari?

HIV-RELATED STIGMA AND DISCRIMINATION: A STUDY AMONG PHARMACISTS WORKING IN HEALTH CLINICS UNDER KUALA LUMPUR AND PUTRAJAYA HEALTH DEPARTMENT

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ABSTRACT

Human Immunodeficiency Virus (HIV)-related stigma and discrimination by healthcare workers (HCW) compromises patients' medication adherence and wellbeing. Hence, it is crucial to discover the HIV-related stigma and discrimination among HCW. This study aimed to describe the HIV-related stigma and discrimination among pharmacists and its association with socio-demographic characteristics, health facility environment, and health facility policies. This is a cross-sectional study with self-administered questionnaires which involves all 156 pharmacists working in primary health clinics under Kuala Lumpur and Putrajaya Health Department (JKWPKL&P). Variables associated with HIV-related stigma and discrimination are analysed. Most participants agree that people living with HIV (PLHIV) have had many sexual partners (68.6%) and HIV infection is due to irresponsible behaviour (69.9%). The percentage of females (44.9%, n=61) who are unwilling to serve people who inject drugs (PWID) doubled the percentage of male participants (20%, n=4) who share the same opinion (p=0.036). Half (50%, n=35) of the participants between 30-39 years old have negative opinions towards PLHIV (p=0.012). About 84.6% (n=11) and 58.3% (n=7) of participants who have co-workers with stigmatising attitude towards PLHIV would avoid physical contact (p=0.003) and would use special infection control measure (p=0.002) when dealing with PLHIV. Most participants (74.4%, n=99) who have seen PLHIV within the past 12 months have negative opinions towards PLHIV (p=0.001). Likewise, 78.1%

($n=50$) of participants having co-workers who stigmatise PLHIV also have negative opinions towards PLHIV ($p=0.029$). Majority of participants working in facilities with adequate HIV risk reduction supplies are willing to serve PWID (63.3%, $n=75$, $p=0.014$) and sex workers (80.8%, $n=97$, $p=0.048$). Most pharmacists possess HIV-related stigma. Age and gender are the only socio-demographic characteristics that significantly associated with willingness to serve PWID. Besides, health facility environment and health facility policies are also significantly associated with higher infection concern and having negative opinions when dealing with PLHIV. Discrimination is minimal but stigmatisation is notable among pharmacists. Stigma reduction program is therefore recommended to be incorporated into the Pharmacy HIV Training Modules.

Keywords: Discrimination, Healthcare Workers, HIV, Pharmacists, Stigma

ABSTRAK

Stigma dan diskriminasi terhadap pesakit Human Immunodeficiency Virus (HIV) oleh kakitangan kesihatan (HCW) menjejaskan kepatuhan ubat dan kesejahteraan pesakit. Oleh itu, pengetahuan tentang stigma dan diskriminasi terhadap pesakit HIV di antara HCW adalah sangat penting. Kajian ini bertujuan untuk menggambarkan stigma dan diskriminasi yang berkaitan dengan HIV di kalangan ahli farmasi dan hubungannya dengan ciri socio-demografi, persekitaran fasiliti kesihatan, dan polisi fasiliti kesihatan. Ini merupakan kajian keratan rentas dengan soal selidik yang dikendalikan sendiri. Ia melibatkan semua 156 ahli farmasi yang bekerja di klinik kesihatan di bawah Jabatan Kesihatan Kuala Lumpur dan Putrajaya (JKWPKL & P). Hubungan antara variabel-variabel dengan stigma dan diskriminasi telah dianalisa. Kebanyakan peserta bersetuju bahawa orang yang hidup dengan HIV (PLHIV) mempunyai ramai pasangan seksual (68.6%) dan jangkitan HIV adalah disebabkan oleh tingkah laku yang tidak bertanggungjawab (69.9%). Jumlah peratus wanita (44.9%, $n=61$) yang tidak bersedia untuk memberi perkhidmatan kepada orang yang menyuntik dadah (PWID) adalah dua kali ganda berbanding dengan jumlah peratus peserta lelaki (20%, $n=4$) yang mempunyai pendapat yang sama ($p=0.036$). Separuh (50%, $n=35$) peserta berusia antara 30-39 tahun mempunyai pendapat negatif terhadap PLHIV ($p=0.012$). Sebanyak 84.6% ($n=11$) dan 58.3% ($n=7$) peserta yang mempunyai rakan sekerja dengan sikap

stigmatisasi terhadap PLHIV akan mengelakkan hubungan fizikal ($p=0.003$) dan akan menggunakan langkah kawalan infeksi khas ($p=0.002$) ketika berurusan dengan PLHIV. Sebilangan besar peserta (74.4%, $n=99$) yang telah berjumpa dengan PLHIV dalam 12 bulan yang lepas mempunyai pendapat negatif terhadap PLHIV ($p=0.001$). Selain itu, sebanyak 78.1% ($n=50$) peserta yang mempunyai rakan sekerja yang menstigma PLHIV juga mempunyai pendapat negatif terhadap PLHIV ($p=0.029$). Kebanyakan peserta yang bekerja di fasiliti dengan bekalan pengurangan risiko HIV yang mencukupi bersedia untuk memberi perkhidmatan kepada PWID (63.3%, $n=75$, $p=0.014$) dan pekerja seks (80.8%, $n=97$, $p=0.048$). Kebanyakan ahli farmasi mempunyai stigma terhadap pesakit HIV. Umur dan jantina adalah ciri sosio-demografi yang didapati berasosiasi secara signifikan dengan kesediaan untuk memberi perkhidmatan kepada PWID. Selain itu, persekitaran fasiliti kesihatan dan polisi fasiliti kesihatan juga berasosiasi secara signifikan dengan kebimbangan jangkitan yang lebih tinggi dan mempunyai pendapat negatif ketika berurusan dengan PLHIV. Diskriminasi adalah minimum tetapi stigmatisasi dapat dilihat di kalangan ahli farmasi. Oleh itu, program pengurangan stigma disyorkan untuk dimasukkan ke dalam Modul Latihan HIV Farmasi.

Kata Kunci: *Diskriminasi, Kakitangan Kesihatan, HIV, Ahli Farmasi, Stigma*

1. INTRODUCTION

The Human Immunodeficiency Virus (HIV) epidemic has seen 76.1 million people diagnosed with the virus and in 2016, there were 36.7 million people living with HIV globally. The global community has committed to end Acquired Immunodeficiency Syndrome (AIDS) as a public threat by 2030 as part of Sustainable Development Goals (SDG) (Ministry of Health Malaysia, 2015).

In Malaysia, a total of 105,988 HIV cases has been documented for over three decades following its discovery since 1986, and in year 2018, the number of diagnosed people living with HIV (PLHIV) is 75,100, while only 41,500 people (55.3%) on antiretroviral therapy (ART), leaving a treatment gap of 33,600 PLHIV untreated (HIV AIDS Asia Pacific Research Statistical Data Information Resources AIDS Data Hub, 2019).

The National Strategic Plan for Ending AIDS (NSPEA) adopts “Ending AIDS by 2030” as the strategy for Malaysia to achieve the vision of “Zero new infections, Zero discrimination and Zero AIDS related deaths”.

Under NSPEA, one of the strategies underlined is the reduction of HIV/AIDS related stigma and discrimination which is a global issue especially in developing countries and countries with multiple cultures, religions and moral values, such as Malaysia (Ministry of Health Malaysia, 2015).

Stigma generally refers to negative beliefs or attitudes assigned to people when their attributes are considered different or inferior to societal norms. When stigma is acted upon, the result is discrimination which comprises actions or omissions that are derived from stigma (Goffman, 2009). There are two types of stigma, namely perceived stigma and enacted stigma. Perceived stigma refers to imagined fear of societal attitudes or potential discrimination; while enacted stigma refers to a real experience of discrimination (Harapan et al., 2013; Henderson et al., 2011).

Stigmatized and discriminatory attitudes among healthcare professionals were common in neighbouring countries such as China and Indonesia (Ma et al., 2010; Malaysian Aids Council, 2018). Healthcare professionals in China had negative biases against patients living with HIV/AIDS (PLWHA) as they were less willing to interact with PLWHA compared to hepatitis B patients (Ma et al., 2010). Meanwhile, the level of stigmatized and discriminatory attitudes towards PLWHA was high among the healthcare workers in Bandar Aceh, Indonesia due to irrational fear of HIV transmission and knowledge on transmission and prevention of HIV (Malaysian Aids Council, 2018).

The first study on Malaysian hospital pharmacists revealed an unexpected result in which 66.7% of the 75 hospital pharmacists endorsed a negative attitude towards PLWHA. The author believed that the negative attitude is influenced by culture, ethnicity, gender, age and urban-rural locality (Katz et al., 2013). A study carried out among the medical students in Universiti Putra Malaysia found that pre-clinical students were significantly more stigmatising towards PLWHA and surprisingly the result was not associated with the level of knowledge the students possessed (Malcolm et al., 1998).

HIV/AIDS-related stigma and discrimination attitudes deter the effectiveness of HIV prevention, testing and treatment to PLHIV (Heyward et al., 1993). Besides, these stigmas also reduce the quality of treatment and self-esteem of the patient that compromised PLWHA's abilities to successfully adhere to ART (Katz et al., 2013; Kaur, 2015; Khan & Baiq, 2013; Li et al., 2006). ART adherence is the key to HIV viral suppression that

led to positive clinical outcomes and 95% adherence to ART is required to produce result of HIV load suppression of <400 copies/mL in the majority of individuals (Lugova et al., 2015). Pharmacists' involvement in providing care to HIV positive patients have been associated with better clinical outcomes including enhanced medication adherence, greater increases in CD4 cell counts, higher viral suppression, reduced pill and reduced medication errors (Ministry of Health Malaysia and UNICEF, 2008; Monjok et al., 2009).

A number of studies done on stigma and discrimination were discussed locally and neighbouring region, however there are limited study on HIV-related stigma and discrimination among pharmacists working in primary care to date. Research conducted in the early years of the epidemic indicated that the majority of healthcare workers in the South-eastern United States believed that they should have the right to refuse services to PLWH and would be unwilling to perform lifesaving procedures to HIV-infected patients (Currey et al., 1990). This study aimed to describe the HIV-related stigma and discrimination among pharmacists working in primary facilities, and its association with socio-demographic characteristics, health facility environment, and health facility policies.

2. METHODOLOGY

A cross-sectional study with self-administered questionnaires is conducted among pharmacists working in health clinics in JKWPKL&P. The questions in the survey questionnaire are fully adapted from Nyblade et al. (2013). Permission from the author is obtained through electronic communication. The questionnaire measures four programmatically actionable drivers of HIV stigma within health facilities, which are the infection concerns in their own facility, the practices and experiences in providing care to PLHIV, the institutional policy and work environment as well as the opinions related to PLHIV. This questionnaire has been tested and validated across six countries: China, Dominica, Egypt, Kenya, Puerto Rico, and St. Kitts and Nevis (Nyblade et al., 2013).

Data is collected from 1st September to 31st October 2018. The inclusion criteria of this study are all registered pharmacists working in health clinics in JKWPKL&P during data collection period. This includes provisionally registered pharmacists (PRP) and contract pharmacists regardless of the duration of service. Meanwhile, the study excluded pharmacists who are on long-term leave, which is defined as leave for

three months and longer, and PRP based in retail settings but currently on attachment in health clinics. Data accessed from the head office of JKWPKL&P reveals that there are a total of 158 registered pharmacists working in all 17 health clinics in Kuala Lumpur and Putrajaya. Name list of these pharmacists is also obtained from the head office. All pharmacists in the name list fulfilling the inclusion criteria are recruited as participants. In total, data of 156 participants have answered the questionnaire. Two participants are dropped out due to their absence from the facility for long-term leave.

All study sites, namely all of the 17 health clinics, have been visited to obtain consent from participants and to administer the questionnaire. Appointments are scheduled among the investigators and the pharmacists-in-charge before visitation. Participants are informed about the study goals and issues of confidentiality prior to being given questionnaires. Questionnaires are answered anonymously by participants in a room with privacy to avoid distractions. There was no time limit given for participants to complete the questionnaires but all participants are able to submit within 20 minutes. Completed questionnaire is placed in a sealed envelope and will be collected by investigator. The clinics have been visited repeatedly in order to collect responses from participants who are not available in the previous visits until response has collected from all participants under JKWPKL&P. No incentives are given to the study participants. The study is approved by the Medical Research and Ethics Committee of Ministry of Health Malaysia (NMRR--18-1275-40588) (IIR).

The associations among the independent and dependent variables that are analysed in this study is summarized in Figure 1. The independent variables include the socio-demographic characteristics of the participants, including sex, age, religion, years of service and the HIV-related training received by participants. The trainings consist of the subjects of HIV stigma and discrimination, infection control and universal precautions, participants' informed consent, privacy and confidentiality as well as key population stigma and discrimination. In addition, the health facility environment was assessed by asking participants' experience of servicing PLHIV in the past 12 months, observing healthcare workers unwilling to care, provide poorer quality of care and talk badly for PLHIV. Hesitancy of healthcare workers in their own facility to work alongside a co-worker living with HIV was assessed. Another independent variable is health facility policies, including

the acceptance to test for HIV without patients’ knowledge, engagement in trouble if discriminate against PLHIV, existence of adequate supplies and standardized protocols in reducing respondents’ risk of infecting HIV as well as the existence of written guidelines to protect PLHIV from discrimination (Nyblade et al., 2013).

Independent Variables

Dependent Variables

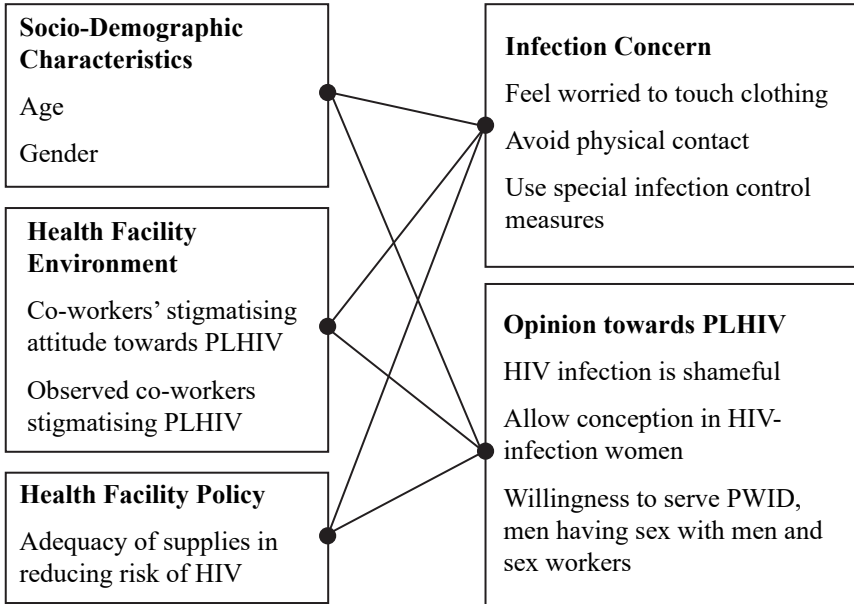


Figure 1. The relationships of associations between the independent and dependent variables that are analysed in this study

The dependent variables indicate HIV-related stigma and discrimination, where infection concern when dealing with PLHIV measures HIV-related discrimination while opinions related to PLHIV measures HIV-related stigma. The infection concerns include worry of touching PLHIV’s clothes, avoiding physical contact and using special infection-control measures when dealing with PLHIV. The opinions related to PLHIV consist of the agreement on the following statements: PLHIV are unconcerned if they infect others, PLHIV should feel ashamed of themselves, PLHIV

have had many sexual partners, PLHIV get infected due to engagement in irresponsible behaviours, HIV is punishment for bad behaviour and PLHIV should be allowed to have babies. Opinions about PLHIV is also measured by assessing the willingness of participants to provide services to people who inject drugs (PWID), men who have sex with men, and sex workers (Nyblade et al., 2013).

Data entry and all statistical analyses were conducted using SPSS version 22. Descriptive statistical analysis is used to describe the socio-demographic characteristics against the infection concern and opinions about PLHIV. Linear by linear chi-square analysis in crosstabs is used to examine the associations among the dependent variables (infection concern when dealing with PLHIV and opinion related to PLHIV) and independent variables (socio-demographic characteristics, health facility environment and health facility policy). Age of participants are converted from continuous data to categorical data. Omitted responses are treated as missing values and excluded from analyses. A value of $P < 0.05$ is considered statistically significant.

3. RESULTS

3.1 Socio-Demographic Characteristics of the Participants

The socio-demographic characteristics of the participants are shown in Table 1. All 156 participants are pharmacists working in health clinics under Kuala Lumpur and Putrajaya Health Department. The mean age of participants was 29 with the standard deviation (SD) of 3.17. Most of the participants were female (87.2%). There were more Muslim respondents (50.6%), followed by Buddhist (30.1%), Hindu (11.5%) and Christian and others (7.7%). Majority (44.2%) of the participants had served the clinics for 4 to 7 years. Most of the participants did not receive any training on HIV stigma and discrimination (71.8%), infection control and universal precautions (53.2%), patients' informed consent, privacy and confidentiality (62.8%) as well as key population stigma and discrimination (78.8%).

Table 1: The Socio-Demographic Characteristics of the Participants

Socio-Demographic Variables	Total (156)	
	n	%
Age (years)	(mean 29 ± 3.17 SD)	
	20-29	84
	30-29	70
	40-49	2
Gender		
	Female	136
	Male	20
Religion		
	Muslim	79
	Buddhist	47
	Hindu	18
	Christian and others	12
Working experience (years)	(mean 5.29 ± 3.23 SD)	
	≤ 1 years	23
	2-3 years	29
	4-7 years	69
	8-11 years	31
	≥ 12 years	4
Number of HIV-positive patients that participants is providing service to in a typical week	(mean 8.04 ± 14.8 SD)	
Types of training received by pharmacist		
HIV stigma and discrimination		
	Yes	44
	No	112
Infection control and universal precautions (including post-exposure prophylaxis)		
	Yes	73
	No	83
Patients' informed consent, privacy and confidentiality		
	Yes	58
	No	98
Key population stigma and discrimination		
	Yes	33
	No	123

3.2 Association between Demographic Data and Opinion about PLHIV

The results of linear-by-linear association analysis shows that both age and gender were significantly associated with opinion on PLHIV ($p=0.012$ and $p=0.036$ respectively).

3.2.1 Association between Gender and Opinion about PLHIV

Females are less willing to serve PWID. The association between gender and willingness to serve PWID are shown in Chart 1. The percentage of females (44.9%, $n=61$) who are not willing to serve PWID doubled the percentage of male participants (20%, $n=4$) who shared the same opinion. ($p=0.036$).

3.2.2 Association between Age and Opinion about PLHIV

Participants with the age group between 30-39 years old are more negatively opinionated towards PLHIV as compared to others. Chart 2 represents the association between age and willingness to serve PWID. There are only 33.3% ($n=28$) of participants with age between 20-29 years old are not willing to serve PWID. Meanwhile, 50% ($n=35$) of the participants in age 30-39 years old agreed with the above statement ($p=0.012$). All ($n=2$) participants in the age group of 40-49 years old are not willing to serve PWID.

3.3 Association between Health Facility Environment and Infection Concern

3.3.1 Association between Having Co-Worker with stigmatising attitude and level of Infection Concern when Dealing with PLHIV

Most participants who have co-workers stigmatising PLHIV would be worried to touch clothing of PLHIV. The association between having hesitant co-workers to work alongside a PLHIV and being worried to touch clothing of PLHIV is statistically significant ($p=0.010$). Chart 3 shows that 38.5% ($n=20$) participants whose co-workers are hesitant to work with PLHIV are worried about touching clothing of PLHIV compared to 16.7% ($n=10$) of worried participants whose co-workers are not hesitant to work with PLHIV.

3.3.2 Association between Have Observed Co-Workers Stigmatising PLHIV and Level of Infection Concern when Dealing with PLHIV.

Participants who have observed HIV-related stigmatisation events in the past tend to be more infection concerned when dealing with PLHIV. It is statistically significant ($p=0.003$) that 84.6% ($n=11$) of participants who have had observed co-workers unwilling to care for PLHIV will avoid physical contact when dealing with PLHIV as compared to 41.6% ($n=47$) of participants who have never observed HCW unwilling to care for PLHIV in the past (Chart 4). On the other hand, Chart 5 represents 58.3% ($n=7$) of participants who have observed co-workers unwilling to care for PLHIV would use special infection control measures when providing services to PLHIV as compared to merely 26% ($n=25$) of participant who have not observed co-workers unwilling to care for PLHIV ($p=0.022$).

3.4 Association between Health Facility Environment and Opinion about PLHIV

The linear-by-linear association analysis of health facility environment and opinion about PLHIV are demonstrated in Chart 6, Chart 7, Chart 8 and Chart 9.

3.4.1 Association between Having Seen PLHIV Within the Past 12 Months and Opinions Towards PLHIV

Most participants who have seen PLHIV within the past 12 months have negative opinions towards PLHIV. As shown in Chart 6, there are substantial number of participants (74.4%, $n=99$) who have seen PLHIV within past 12 months agree that people get infected with HIV because they engage in irresponsible behaviours, compared to merely 35.3% ($n=6$) participants who have not seen PLHIV within the past 12 months agree to the same statement ($p=0.001$)

Meanwhile, Chart 7 reveals that 72.9% ($n=97$) of participants who have seen PLHIV within the past 12 months agree that PLHIV have many sexual partners, whereas only 35.3% ($n=6$) participants who have not seen PLHIV within past 12 months agree with the statement ($p=0.002$).

3.4.2 Association between Having Co-Worker with Stigmatising Attitude and Opinions Towards PLHIV

Majority of participants who have co-workers stigmatising PLHIV have negative opinions towards PLHIV. Chart 8 suggests that 78.1% (n=50) of participants having co-workers who are hesitant to work alongside PLHIV agree that PLHIV have had many sexual partners, while there are slightly less participants (61.4%, n=54) who do not have such hesitant co-workers agree to the same statement (p=0.029).

As explained in Chart 9, there were 54.7% (n=35) participants having co-workers who are hesitant to work alongside PLHIV admit that they are not willing to serve PWID. This percentage is higher than the percentage of participants (33%, n=29) who do have co-workers who are hesitant to work alongside a PHIV (p=0.008).

3.5 Association between Health Facility Policy and Opinion about PLHIV

3.5.1 Association between Adequacy of HIV Risk Reduction Supplies and Willingness to Serve PWID

Most participants working in facilities that have adequate supplies for HIV risk reduction are willing to serve PWID (63.3%, n=76, p=0.014) and sex workers (80.8%, n=97, p=0.048) compared to 40% (n=14) and 64.7% (n=22) respectively among participants working in facilities that have inadequate supplies in reducing risk of HIV infection (Chart 10 and Chart 11).

4. DISCUSSION

HIV-related stigma refers to negative attitudes and beliefs about PLHIV (Centers for Disease Control and Prevention, 2019). The questionnaire in study is using opinions towards the HIV key population groups to indicate the opinions towards PLHIV (Nyblade et al., 2013). The HIV key population groups are PWID, men having sex with men and sex workers. Unwillingness to provide healthcare service to the mentioned groups is considered having stigma towards PLHIV (Nyblade et al., 2019).

Meanwhile, HIV related-discrimination is the act of treating PLHIV differently than those without HIV, which is the behaviours that result from negative attitudes or beliefs (Centers for Disease Control and Prevention, 2019). Taking actions due to higher infection concern when dealing with

PLHIV is considered as being discriminative. Examples of these actions include being worried to touch clothing, avoid physical contact and use special infection control measures when providing healthcare service PLHIV (Nyblade et al., 2019).

Pharmacists working in government health clinics in Kuala Lumpur & Putrajaya Health Department generally have positive behaviours towards PLHIV. Most of them do not demonstrate discriminative actions when dealing with PLHIV. However, more than half of the participants have negative opinions towards PLHIV, as they agreed with stigmatising statements such as PLHIV have had many sexual partners and HIV infection is a result of irresponsible behaviour. These unfavourable opinions indicate stigmatisation. Topics on HIV-related stigma and discrimination is therefore recommended to be incorporated into the HIV training modules. Previous studies in Nigeria and Mexico also demonstrated that health professionals would believe in HIV-related negative statements such as PLHIV bore the responsibility of having HIV and were being punished as a result of their “sexual misbehaviours”. (National Institute of Public Health of Mexico, 2004; Adebajo et al., 2003).

4.1 Association between Demographic Data and Stigma

Females are less willing to serve PWID. This finding indicates that females are generally more stigmatising towards PLHIV. A similar study outcome discovers that female HCWs are more stigmatising in their “attitudes of blame or judgment” than male HCWs possibly due to women suffering much greater social consequences for behaviour that is deemed to be sexually or morally deviant by society (Andrewin and Chien, 2008). On the contrary, a study in South Africa suggests that female HCWs evoked less discriminatory attitudes (Mulaudzi, 2011).

Participants with the age group between 30-39 years old are more negatively opinionated towards PLHIV as compared to other age groups. This finding corresponds to a study in Kedah which reveals that female pharmacists aged over 30 years with job experience of more than 5 years have comparatively higher negative attitudes than others, while young pharmacists with job experience in the range of 3-5 years hold lesser negative attitudes (Khan & Baig, 2013).

Female pharmacists within the age group 30-39 years old make

up the majority of pharmacists working in Kuala Lumpur and Putrajaya Health Department. The presence of stigma in this group is somewhat alarming because methadone replacement therapy is one of the core services provided by primary care in Kuala Lumpur to PWID that also potentially comprises PLHIV. Thus, action needs to be taken to reduce stigma among pharmacists with longer job experience in the primary care setting.

4.2 Association between Health Facility Environment and HIV-related Stigma and Discrimination

Working environment is significantly associated with both stigma and discrimination in this study. The co-worker's negative opinion towards PLHIV may create a stigmatising environment among the HCW.

Although pharmacists are adequately knowledgeable to understand the mode of transmission of HIV infection, the majority of participants working in a stigmatising environment tend to have negative opinions towards PLHIV, which indicates stigma. This group of participants also tend to be discriminative, which is signified by actions taken such as being worried to touch clothing, avoid physical contact and use special infection control measures when providing service to PLHIV (Nyblade et al., 2019).

This can be explained by the possible influence of culture in the workplace on the attitudes towards PLHIV (Khan & Baig, 2013). It is believed that the attitude of one's co-workers may influence one's level of discrimination. Khan and Baig (2013) explained that stigma towards PLHIV can be due to social pressure. It is possible that in Malaysian culture, social relations with HIV and AIDS patients are looked down upon, and a healthy person befriending an HIV positive patient faces the same discriminative response (Khan & Baig, 2013).

Some health professionals take extreme caution when treating HIV-positive individuals. This will exacerbate a medical environment in which AIDS-related stigmatisation leads to differential treatment of PLHIV (Ulasi et al., 2009). Therefore, policy aspects of the facility environment were suggested as one of the intervention targets to reduce HIV-related stigma and discrimination (Nyblade et al., 2019).

With these findings, future studies are suggested to explore

healthcare providers' attitudes and societal response toward persons who befriend HIV positive patients. It is possible that social responses toward persons who befriend HIV positive patients may be a factor to the negative attitude and low empathy level of the healthcare providers in this study (Khan & Baig, 2013).

4.3 Association between Health Facility Policy and Opinion about PLHIV

Most participants working in facilities that have adequate supplies for HIV risk reduction are willing to serve PWID and sex workers. This reveals the significant association between adequacy of risk reduction policy and HIV-related stigma. Similarly, Churcher (2013) from Thailand finds that the existence of policies targeting PWID normalises the stigmatising attitudes belonging to healthcare staff and the public in general. Dong et al. (2018) also suggests that the reduction of medical discrimination was inseparable from government policy support and the hospital management system.

Therefore, the government should implement measures to refine the current laws and regulations and establish a professional insurance mechanism to protect the rights of medical staff members, thereby reducing the worries of HCWs in providing services to PLHIV.

5. CONCLUSIONS

Discrimination is minimal but stigmatisation is notable among pharmacists. Most pharmacists have unfavourable opinions related to PLHIV, which is an indication of stigmatisation. Certain variables of socio-demographic, health facility environment and policy are significantly associated with HIV-related stigma and discrimination. Being female and age 30-39 years old are associated with having stigma towards PLHIV. Besides, having co-workers with stigmatising attitude and working without adequate HIV risk reduction supplies are also significantly associated with HIV-related stigma and discrimination, indicated by having negative opinions and rising infection concern when dealing with PLHIV. Thus, stigma reduction program is warranted for pharmacists. Future studies should be considered to collect responses from larger groups of pharmacists such as pharmacists working in hospital and private sectors. The attitudes of healthcare providers in terms of the societal response toward persons who befriend HIV positive patients can

also be explored. Besides, effectiveness of training on HIV-related stigma and discrimination can also be examined. More research should also be done to investigate the factors affecting HIV-related stigma and discrimination.

6. LIMITATIONS OF THE STUDY

The limitation of the study is relying on self-reported attitudes and is therefore subject to reporting bias. Apart from that, data collected only from urban areas and solely from government primary health clinics, thus generalisation to pharmacists from the private sector or sub-urban area might not be possible. The study was conducted using a cross-sectional design, which is limited to a particular point in time and individual respondent's perception might change over time.

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APPENDIX

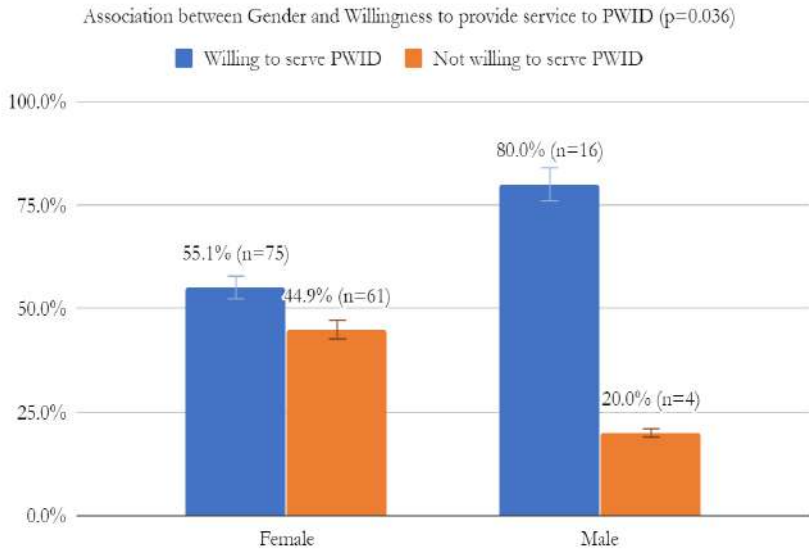


Chart 1: Association between Gender and Willingness to provide service to PWID

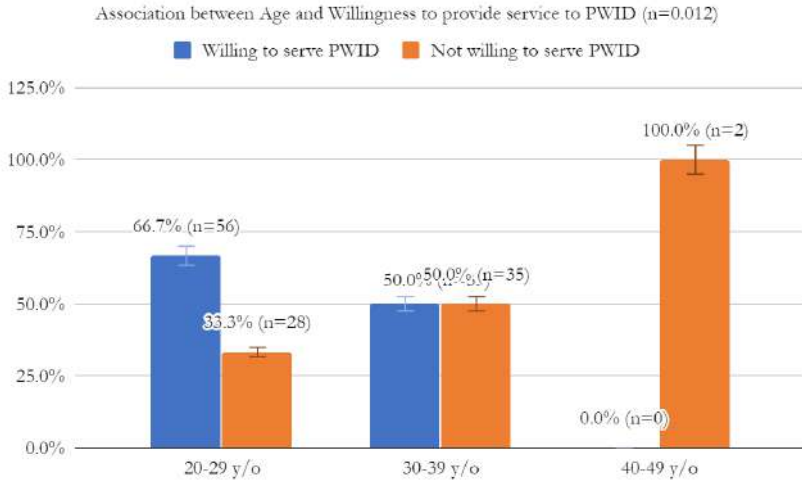


Chart 2: Association between Age and Willingness to provide service to PWID

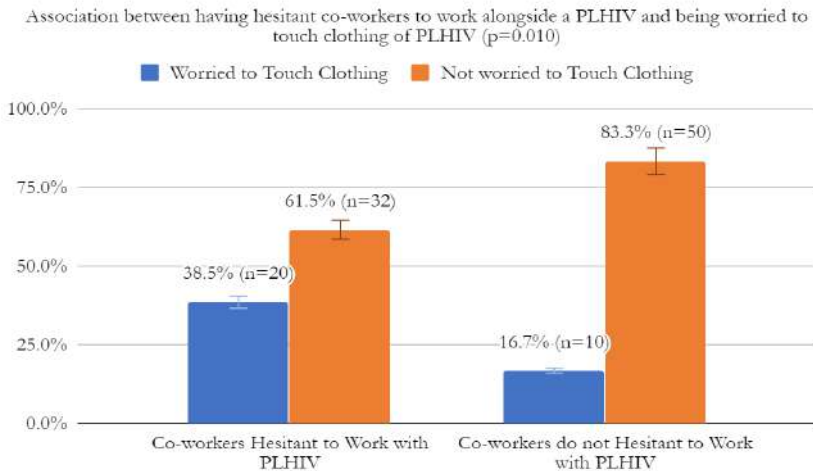


Chart 3: Association between having hesitant co-workers to work alongside a PLHIV and being worried to touch clothing of PLHIV

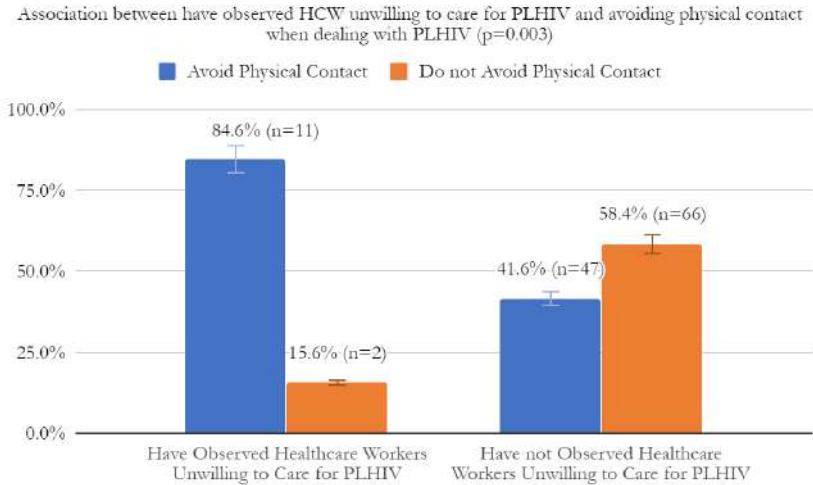


Chart 4: Association between have observed HCW unwilling to care for PLHIV and avoiding physical contact when dealing with PLHIV

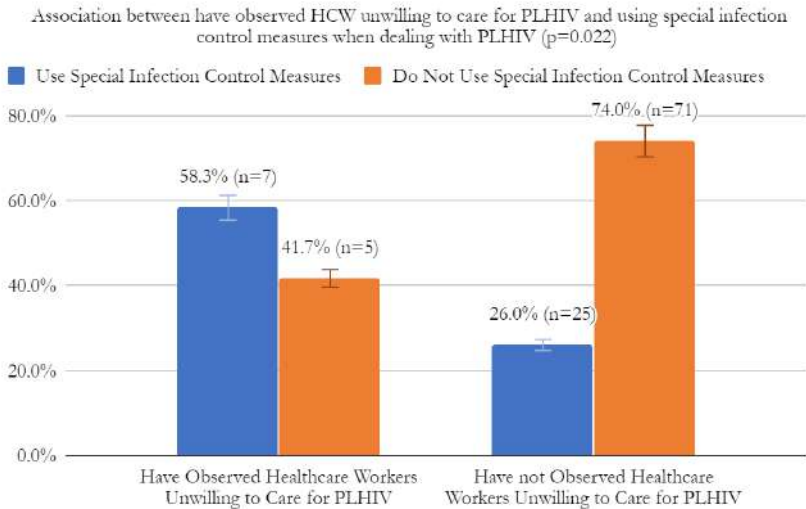


Chart 5: Association between have observed HCW unwilling to care for PLHIV and using special infection control measures when dealing with PLHIV

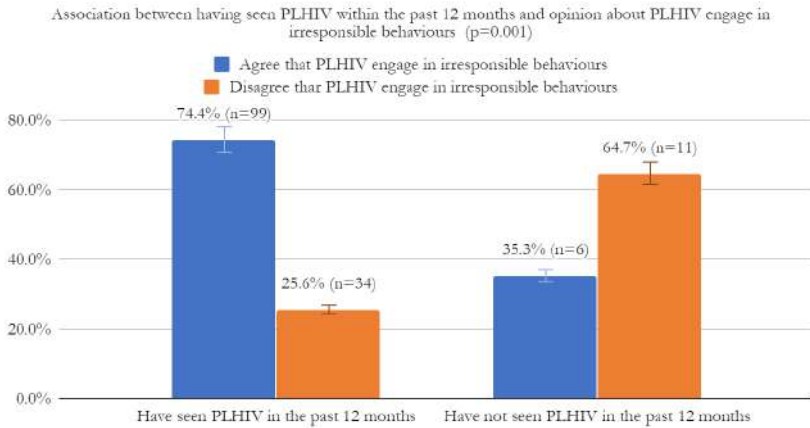


Chart 6: Association between having seen PLHIV within the past 12 months and opinion about PLHIV engage in irresponsible behaviours

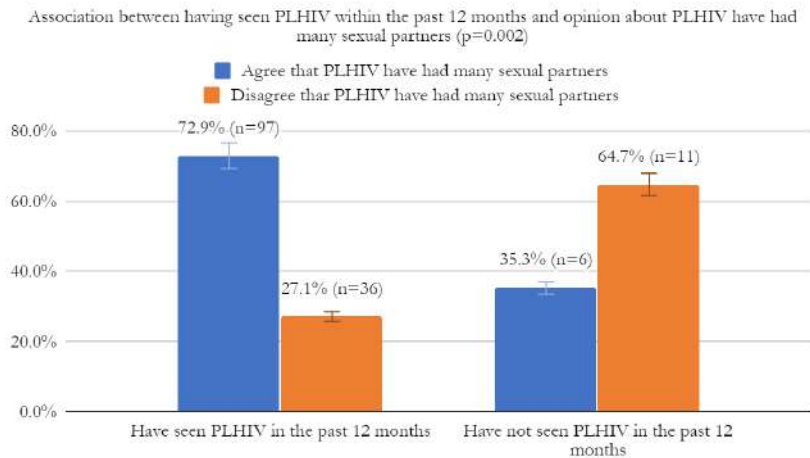


Chart 7: Association between having seen PLHIV within the past 12 months and opinion about PLHIV have had many sexual partners

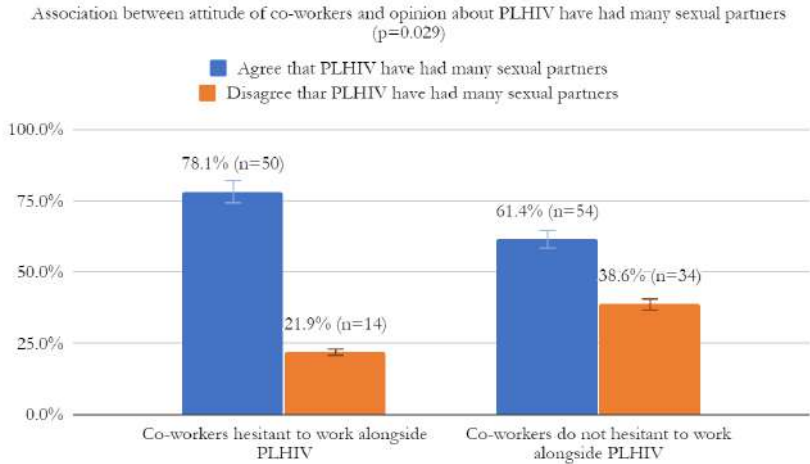


Chart 8: Association between having co-workers who are hesitant to work alongside PLHIV and opinion about PLHIV have had many sexual partners

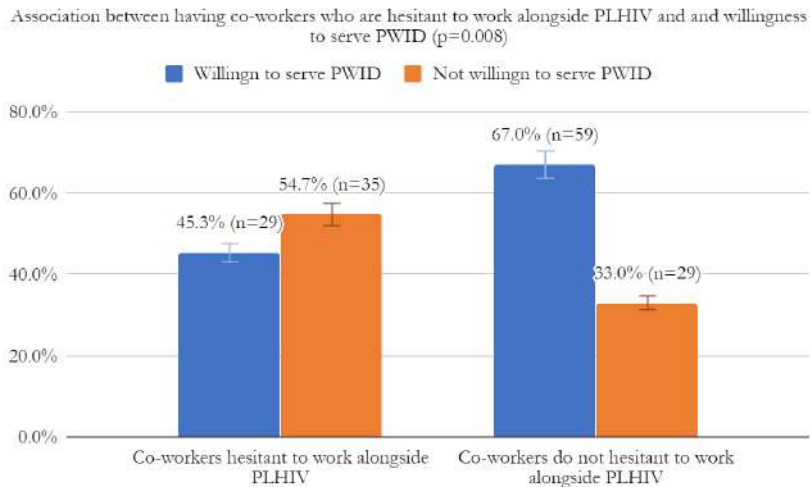


Chart 9: Association between having co-workers who are hesitant to work alongside PLHIV and willingness to serve PWID

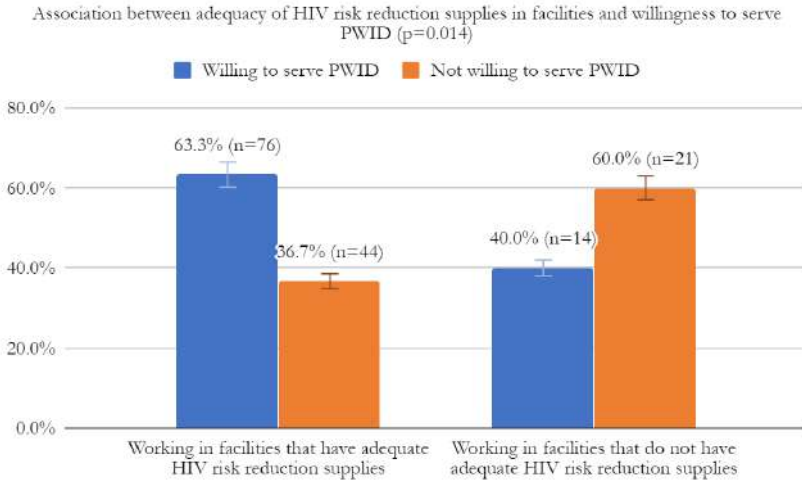


Chart 10: Association between adequacy of supplies for HIV risk reduction in facilities and willingness to serve PWID

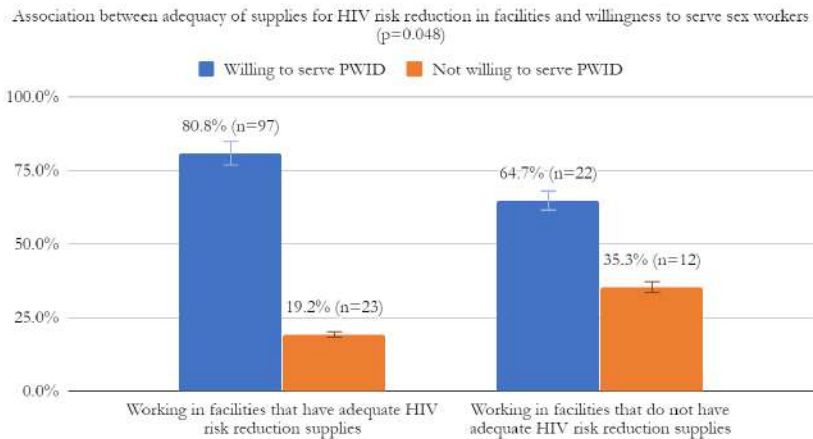


Chart 11: Association between adequacy of supplies for HIV risk reduction in facilities and willingness to serve sex workers

EXPLORING THE PRACTICES OF USING BISACODYL SUPPOSITORIES AND GLYCERIN (25%) AND NACL (15%) ENEMAS AMONG REHABILITATION PATIENTS

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ABSTRACT

Constipation is a major complaint among patients in the rehabilitation setting, which may be the result of neurological deficit or a lack of physical activity. Suppositories or enemas are frequently prescribed for these patients in order to develop a regulated bowel regimen. No study has evaluated rehabilitation patients' experience and perceived barriers in using these pharmaceuticals. The study was aimed at determining the patients' experience and perceived barriers to using rectal route pharmaceuticals, bisacodyl suppositories and glycerin (25%) and sodium chloride (15%) enemas regularly in the management of chronic constipation. A qualitative study using a structured interview model was conducted among patients receiving treatment at a rehabilitation hospital in Malaysia. Adult patients or their care-givers who used either bisacodyl suppositories or glycerin (25%) and sodium chloride (15%) enemas for a minimum period of one month as part of a regulated bowel regimen were invited to participate in the study. Interviews were audio recorded and transcribed verbatim. Coding and Thematic analysis were done using Microsoft Excel 2010. From the analysis, pain and discomfort upon insertion, the soft texture of suppositories making them difficult to insert, time to onset of action, insufficient supply, physical barriers such as limited mobility and a lack of assistance in administration were reported as common barriers in using these medications. Interventions such as the provision of medication counseling and written information to patients, improved communication among health professionals as well as increase awareness of regular bowel program may reduce barriers to effective use of these pharmaceuticals.

Keywords: Constipation, Enema, Rehabilitation, Suppository

ABSTRAK

Sembelit merupakan satu isu utama di kalangan pesakit rehabilitasi yang disebabkan oleh defisit neurologi atau kekurangan aktiviti fizikal. Intervensi farmakologi seperti penggunaan supositori dan enema merupakan kaedah yang sering digunakan sebagai rawatan penyakit sembelit atau program usus antara golongan pesakit rehabilitasi. Setakat masa ini, tiada kajian yang menjalankan penilaian pengalaman dan rintangan yang dihadapi oleh pesakit rehabilitasi dalam segi penggunaan ubat-ubatan ini. Kajian in bertujuan untuk mengenalpasti pengalaman dan rintangan yang dialami semasa penggunaan ubat-ubatan melalui dubur semasa rawatan sembelit kronik, iaitu supositori bisacodyl dan enema gliserin (25%) dan natrium klorida (15%). Kajian kualitatif ini menggunakan model temu bual berstruktur di kalangan pesakit yang menerima rawatan di hospital rehabilitasi di Malaysia. Pesakit dewasa atau penjaga pesakit yang menggunakan supositori bisacodyl atau enema gliserin (25%) dan natrium klorida (15%) untuk tempoh minimum satu bulan telah direkrut dalam kajian. Sesi temu bual telah dirakam dan ditranskrip secara verbatim. Analisa kod dan Thematic dilakukan menggunakan Microsoft Excel 2010. Menurut kepada analisa, rintangan yang ditemui termasuk kesakitan dan perasaan tidak selesa semasa kemasukan ubat-ubatan, tekstur supositori yang terlalu lembut, jangka masa tindakan ubat-ubatan yang panjang, bekalan ubat yang tidak mencukupi serta halangan fizikal seperti pergerakan terhad dan keperluan bantuan orang lain. Bagi mengurangkan rintangan yang dihadapi oleh pesakit, intervensi seperti kaunseling ubat-ubatan, peningkatan komunikasi antara profesional kesihatan dan juga peningkatan kesedaran mengenai program usus antara profesional kesihatan adalah dicadangkan agar dapat mencapai rawatan yang berkesan.

Kata kunci: Sembelit, Enema, Rehabilitasi, Supositori

1. INTRODUCTION

Rehabilitation is defined as a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions, interaction with their environment by the World Health Organization (WHO). The needs of rehabilitation services are not only restricted to adult and geriatric population. It is also an important aspect of care for those who has impairment and functional limitations following illnesses and injuries such as lower-limb amputation, spastic cerebral palsy, burn injuries, spinal

cord injuries and brain injuries (Mills et al., 2017). Bowel management is an important aspect of management in rehabilitation setting as constipation is a major complaint among rehabilitation patients.

Constipation may be the result of neurological deficit, lack of physical activity or mobility and medication used which commonly occurred in rehabilitation setting (Linton, 2014). In a study of gastrointestinal complications among stroke survivors, the dominant gastrointestinal symptom was found to be constipation, affecting 25.9% of subjects (Lin et al., 2013). Among patients with spinal cord injury (SCI), constipation was a complaint among 42 to 81% of patients (Otegbayo et al., 2006). Moreover, the prevalence of constipation in geriatric patient in inpatient setting is estimated at 50%. It can result increase morbidity and mortality, and a longer stay in hospital (De Giorgio, 2015). The prevalence of constipation among patients with cerebrovascular accident who admitted to rehabilitation program was reported to be 49% (Dourado et al., 2012). Therefore, regular assessment for constipation its current treatment will improve patient care.

Structured bowel management program could improve bowel symptoms and enhance quality of life in patients (Amatya et al., 2016). Bowel management program in rehabilitation setting is often multidimensional which include non-pharmacological (conservative and non-surgical), pharmacological, or surgical approach. Non-pharmacological measures such as bowel evacuation, dietary modifications, and fluid intake to reduce gastrointestinal transit time, incidences of difficult evacuation and shorten the duration of bowel management. Pharmacological treatment such as rectal and oral laxatives, stool softener and glycerin enema were commonly used for constipation (Engkasan et al., 2013). The use of suppositories is a common and often essential component for a successful bowel management. A systematic review findings reported that rectal suppositories are commonly used to maintain or enhance a successful bowel management program (Krassioukov et al., 2010). Moreover, bisacodyl and glycerin suppositories were found to be the most commonly active ingredient used. In Malaysia, a study reported among the various bowel regimens used in SCI patients, about 67% of the patients used suppositories for bowel management. The three most common techniques of bowel evacuation were combinations of bisacodyl suppository and digital stimulation, suppositories plus digital stimulation plus manual evacuation and suppositories only (Engkasan et al., 2013).

A standard medication counseling service on bowel preparation such as suppository and enema is available in the pharmacy department at both inpatient and outpatient setting. General medication counseling will be conducted based on the Guideline of Medication Counseling by the Ministry of Health Malaysia (Mohamad et al., 2019). In addition, a bowel education program in accordance to guideline is given to patients in the spinal cord injury ward in Cheras Rehabilitation Hospital by the multidisciplinary spinal rehabilitation team which include doctors, nurses, occupational therapists, physiotherapists and clinical pharmacist. The bowel program includes understanding of neurogenic bowel and its impact of the disease on their bowel function. Knowledge of bowel management interventions and influencing factors such as fluids intake, diet, regular routine, timing, positioning were included as a standard education (Coggrave et al., 2012). Moreover, practical skills for bowel interventions such as use of bisacodyl suppository with digital stimulation are guided and observed by trained nurses in inpatient setting to ensure appropriate and effective bowel intervention.

However, it was found that patient preference should be taken into account on the choice of bowel management. A study found that there were patient resistance to the laxative that was prescribed (Krassioukov et al., 2010). Patients with spinal cord injury suffered from a greater extent of fecal urgency and required more time for bowel management. 28% of 125 patients attending Spinal Rehabilitation Clinic in UMMC had spent more than 1 hour on bowel care (Engkasan et al., 2013). Since most patients in rehabilitation setting may need lifelong bowel care, we strive to ensure that patients get best results from the pharmacotherapy prescribed to patients in the form of bisacodyl suppositories and Glycerin (25%) and NaCl (15%) enemas which both require per rectal administration. Thus, the aims of this study were to explore practices in the use of bisacodyl suppositories and glycerin (25%) and NaCl (15%) enemas among rehabilitation patients, and to identify the challenges faced on its administration.

2. METHODS

This qualitative study using semi-structured interview was carried out at Cheras Rehabilitation Hospital from February 2018 to February 2019. Participants were recruited at the Specialist Clinic Pharmacy and adult wards. Study participants were patients aged 18 to 60 years old who have been prescribed with regular bisacodyl suppositories or glycerin (25%) and NaCl

(15%) enemas for a minimum of one month and self-administer bisacodyl suppositories or glycerin (25%) and NaCl (15%) enemas or their care-givers.

Investigators recruited candidates by first reviewing their prescriptions and seeking consent. Data were collected using a self-constructed questionnaire consisting of 2 parts. The initial part of the questionnaire collected data on: (i) participant demographics; (ii) diagnosis; (iii) medication prescribed and duration; (iv) the use of lubricant; (v) storage of prescribed medication; (vi) person administering medication; and (vii) awareness of pharmacist counselling service. The subsequent part was a semi-structured interview to investigate how they administer the prescribed medication and difficulties encountered. The interview guide with a lists of questions was developed by listing key points of interest on usage of suppository and enema. Structured, open-ended questions anticipate participants to share information in their true understanding, own phrases and words without setting a limit on their answers. Pilot study was done to ensure feasibility prior to the main study. The interview was conducted in either English or Malay, according to the subject's preference. Before each interview, written informed consent was obtained from all subjects.

2.1 Data analysis

All interviews were audio recorded and transcribed verbatim. Interviews conducted in the Malay language was translated into English and verified by another translator. To ensure accuracy of transcription, another researcher listened to the audio recordings of interviews and compared them with the transcribed copies. Thematic analysis was employed to analyse interview data to identify patterns or regularities (Sandelowski, 2000).

The interviewer proposed potential codes and the transcripts were coded into segmental data. The coded data was subsequently reviewed by a fellow researcher followed by a discussion among researchers to determine inter-rater agreement. All disagreements were discussed until a consensus was reached. The codes were sorted into categories, and then grouped into themes. The entire analysed data was reviewed by an expert in qualitative research methodology.

This research gained ethical approval from The Medical Research and Ethics Committee of the Malaysian Ministry of Health with approval number NMRR -16-2858-33275 (IIR).

3. RESULTS

3.1 Subject's Demographic Characteristics

A total of 11 subjects were recruited to participate in the research. Six participants (54.5%) were male and five (45.5%) were female. In terms of ethnicity, six participants were Malay, four were Indian, and one were Chinese. The subjects' age ranged from 20 to 61. Five (45.5%) participants and six (54.5%) participants were recruited from ward and specialist clinic respectively. Both participants had been on the treatment regimen for more than 6 months. Seven participants (63%) used lubricant as an aid of administration while four (36%) did not. Ten participants (91%) kept suppositories in the fridge, while one participant who was prescribed with enema kept her medication at room temperature. Table 1 summarized the demographic characteristics of the subjects.

Table 1: Subject's demographic characteristics

Subject	Gender	Age	Ethnicity	Educational level	Medication	Administration	Lubrication	Storage of medication	Specialist Clinic/Ward	Prescribed Frequency
P001	Male	40	Indian	Tertiary	Bisacodyl Suppository	Caregiver	None	Fridge	Acquired Brain Injury Ward	EOD
P002	Female	32	Malay	Tertiary	Bisacodyl Suppository	Self	Hydroxyethyl cellulose Jelly	Fridge	Spinal Cord Injury Ward	EOD
P003	Male	30	Malay	Secondary	Bisacodyl Suppository	Caregiver	Lignocaine gel	Fridge	Acquired Brain Injury Ward	EOD
P004	Female	45	Malay	Diploma	Bisacodyl Suppository	Caregiver	Hydroxyethyl cellulose Jelly	Fridge	Acquired Brain Injury Ward	EOD
P005	Male	50	Indian	Diploma	Bisacodyl Suppository	Self	Hydroxyethyl cellulose Jelly	Fridge	Spinal Cord Injury Clinic	EOD
P006	Male	20	Malay	Secondary	Bisacodyl Suppository	Self	Hydroxyethyl cellulose Jelly	Fridge	Spinal Cord Injury Clinic	OD
P007	Male	41	Chinese	Secondary	Bisacodyl Suppository	Caregiver	Hydroxyethyl cellulose Jelly	Fridge	Spinal Cord Injury Clinic	OD
P008	Female	18	Malay	Secondary	Bisacodyl Suppository Glycerin (25%) and NaCl (15%) enema	Caregiver	None	Fridge	Acquired Brain Injury Ward	EOD
P009	Female	33	Indian	Secondary	Bisacodyl Suppository	Self	Hydroxyethyl cellulose Jelly	Room temperature	Spinal Cord Injury Clinic	EOD
P010	Male	61	Malay	Secondary	Bisacodyl Suppository	Caregiver	None	Fridge	Spinal Cord Injury Clinic	EOD
P011	Female	29	Indian	Secondary	Bisacodyl Suppository	Self	None	Fridge	Spinal Cord Injury Clinic	EOD

3.2 Themes

A total of 11 samples were collected and interviewed. A few challenges faced by these participants were identified. They were classified into seven general themes which include physical barrier and lack of assistance. Sensation of discomfort or pain on insertion of suppository was also found among the participants. Another finding was the over soft texture of suppository which hinders regular bowel program. Insufficient supply of medication and requirement of lubricant upon insertion of suppository were also the problems faced by participants.

Another challenges faced by participants was the long waiting time on passing motion and difficulty on insertion due to impacted stools.

Theme 1: Physical barrier and lack of assistance

One problem arise from the subject was safety issue of using suppository on wheelchair due to his physical disability. Subject claimed he did not insert the suppository by himself after his experienced of fall during insertion of suppository on the wheelchair.

“Last time I did it by myself on the wheelchair. There is one time I fell down, so I no longer do it myself.” (P 0010)

Patient with physical barrier often needs assistance on insertion of suppositories. Another subject said that due to his disability and lack of help from caregiver, he has difficulties in inserting suppository which leads to poor compliance.

“Sometimes, I do for once every 2 days. Sometimes, not enough time, no one is there to help... Sometimes, I couldn't insert deep enough... not strong enough...” (P 010)

Another subject expressed his view that the use of suppository required assistance which caused inconvenience to the caregiver.

“The suppository takes half an hour... slower (to take effect) ... just like this morning, after inserting the suppository, he didn't have the feeling of pass motion even though it's time for shower because we have to wait for him to pass motion... after that, if it is still slow, we have to rub the stomach so that can see the faeces come out (in diapers)”

Theme 2: Sensation of discomfort or pain on insertion of suppository

One problem raised was the sensation of pain on insertion of suppository especially on initiation of medication. According to one interviewed participant, suppository caused pain after inserting it.

“Not problems... sometimes he says (there was) little pain” (P001)

Another subject claimed feeling uncomfortable on initiation of his new treatment regimen on using the suppository. He also had the perception of discomfort on using the suppository. However, eventually he feels more comfortable of using the suppository as he gets used to it by time.

“At first it was really difficult because it's new... Now I have already got used to it. Look like not comfortable.” (P0011)

Theme 3: The texture of suppository was too soft

Another problem was the suppository was too soft for insertion to the rectum which most probably due to improper storage. Storage of suppository is an important factor to maintain an effective treatment of the suppository. One subject claimed the suppository was too soft to be inserted as it was occasionally kept in a warm place. As a result, the subject needs to replace the suppository with another one.

“There is something so... I mean it (the suppository) is not hard ... not hard enough ... to push... it's very soft... I will take out and put outside... I throw and get the new one... Sometimes I leave it outside...” (P005)

Another subject had similar problem on the suppository. The suppository became soft prior inserting. This was most probably due to exposure to heat causing it too soft to be inserted into the rectum. As the participant did not have a refrigerator, she had to buy ice cubes for storage of suppository to avoid exposure to heat.

“If it melts, which happened while at college because I don't have a fridge... I had to buy ice.” (P007)

Theme 4: Insufficient supply of medication

Another concern raised was insufficient supply of medication. It could cause distress to patients as they could not pass motion without the medication. One participant claimed not getting enough supply of enema from the primary care facility.

“Last time I was staying in Malacca, so that time the hospital is not giving me a lot of... err... enema, give me one box only. I told them to the pharmacy, I need 6 or 4 box, because I use twice, morning and night time, evening, so I need the thing.” (P 009)

As a result of insufficient medication supply, the participant had to use self-innovative practice, modifying the enema by putting soap and water into the enema in order to pass motion.

“Ah, if in case, the things I never use, my motion won't come out. I have to use that one... So, what I do, I take the empty one (enema) and wash them and put water and soap... hehe... but it's very difficult la for me. Also it's very hard to come.” (P009)

Theme 5: Required lubricant on insertion of suppository

According to the interviewed participants, insertion of suppositories were associated with the aid of lubricants. One subject claimed that without the aid of lubricant, it took longer time to insert the suppository.

“Without ky jelly... that would be slower if it is not smooth...it takes a longer time to insert it sufficiently deep.” (P003)

The participant also raised a concern that more force was required to insert the suppository.

“(Without the ky jelly) it takes longer and not smooth, but with it, it quicker to insert... without the jelly it become a little difficult... It takes longer and can't insert deep enough.” (P003)

Besides, the participant also mentioned that the suppository can be expelled out from the anus without the aid of lubricant.

“It comes out (without the ky jelly).” (P003)

Theme 6: Long waiting time on passing motion

Two subjects claimed that waiting time on passing motion was 20 to 30 minutes after inserted the suppository, where else another subject claimed it took about 5 to 6 hours.

“ok, after that I wait and the time usually varies... for example sometime 20 minutes , sometimes half an hour... it... But it doesn't take more than half an hour.” (P002)

“For examples sometimes I notice that some people insert and faeces can be excreted quickly but he has to wait for a long time... quite long, about 5 to 6 hours, the quickest will be an hour.” (P006)

“The suppository takes half an hour... slower ... just like this morning, after inserting the suppository, he didn't have the feeling of pass motion even though it's time for shower because we have to wait for him to pass motion... after that, if it is still slow, we have to rub the stomach so that can see the faeces come out (in diapers)” (P008)

Table 2: Subjects' Comments and Challenges Face on Administration of Bisacodyl Suppositories and Glycerin (25%) and NaCl (15%) Enemas Classified by General Theme and Sub Theme

	General Theme	Sub-theme	Subject	Testimony
Theme 1	Assistance needed due to physical barrier	Safety issue on using suppository on wheelchair	P010	Last time I did it by myself on the wheelchair. There is one time I fell down, so I no longer do it myself.
		Need assistance; inconvenient to other family members	P010	Sometimes, I do for once every 2 days. Sometimes, not enough time, no one is there to help... Sometimes, I couldn't insert deep enough... Not strong enough
			P008	The suppository takes half an hour... slower... just like this morning, after inserting the suppository, he didn't have the feeling of pass motion even though it's time for shower because we have to wait for him to pass motion... after that, if it is still slow, we have to rub the stomach so that can see the faeces come out (in diapers)
Theme 2	Sensation	Pain	P001	Not problems, sometimes he says little pain
		Uncomfortable	P011	At first it was really difficult because it's new... Now I have already got used to it. Look like not comfortable.

	General Theme	Sub-theme	Subject	Testimony
Theme 3	Storage issues	Exposed to heat	P005	There is something so. I mean it is not hard ... Not hard enough ... To push... It's very soft.... I will take out and put outside... I throw and get the new one... Sometimes I leave it outside
		Need a refrigerator to store suppository	P007	If it melts, which happened while at college, because I don't have a fridge, I had to buy ice
Theme 4	Shortage of supply	Insufficient supply	P009	Because last time I was stay in Malacca, so that time the hospital is not giving me a lot of... err... enema, give me one box only. I told them to the pharmacy, I need 6 or 4 box, because I use twice, morning and night time, evening, so I need the thing
		Self-innovative practice	P009	Ah, if in case, the things I never use, my motion won't come out. I have to use that one... So, what I do, I take the empty one and wash them and put water and soap... hehe... but it's very difficult la for me. Also it's very hard to come.
Theme 5	Requires lubricant as aids	Longer insertion time without lubricant	P003	Without ky jelly... that would be slower if it is not smooth... it takes a longer time to insert it sufficiently deep.

	General Theme	Sub-theme	Subject	Testimony
		More force required without lubricant	P003	(Without the ky jelly) it takes longer and not smooth, but with it, it quicker to insert... without the jelly it become a little difficult... It takes longer and can't insert deep enough.
		Came back out without lubricant	P003	It comes out (couldn't be inserted without lubricant) ...
Theme 6	Duration	Long waiting time	P002	Ok, after that I wait and the time usually varies.... for examples sometime 20 minutes, sometimes half an hour... it.... But it doesn't take more than half an hour...
			P006	For examples sometimes I notice that some people insert and faeces can be excreted quickly but he has to wait for a long time... quite long, about 5 to 6 hours, the quickest will be an hour.
			P008	The suppository takes half an hour... slower... just like this morning, after inserting the suppository, he didn't have the feeling of pass motion even though it's time for shower because we have to wait for him to pass motion... after that, if it is still slow, we have to rub the stomach so that can see the faeces come out (in diapers)

	General Theme	Sub-theme	Subject	Testimony
Theme 7	Difficulty in insertion	Hard to insert because of Impacted stool	P004	When inserting time, if the faeces has hardened and for example the rectum is full.

4. DISCUSSION

During the course of interviewing participants, many initially stated that they did not encounter any problems using suppositories or enemas. However, upon further probing as well as analyzing the transcribed verbatim, various problems encountered by the participants or their caregivers were detected. Without furthering probing in detailed, we may have overlooked the challenges faced during usage and administration of suppository and enema. This could signify a general reluctance to discuss the use of the per rectum route, which may be taboo among the study population made up of various Asian ethnicities.

The self-efficacy theory of Bandura follows the principle that people are likely to engage in activities to the extent that they perceive themselves to be competent at those activities. Outcome expectancy is described as the estimation that a certain behavior will elicit a certain outcome (Bandura, 1994). During the interviews, we encountered participants who had difficulties self-administering the suppositories or enemas due to disabilities. Disabilities in rehabilitation patients could affects personal activity of daily living (Jeong, 2018). Therefore, some did not get the outcome they had anticipated on bowel movement. This could lead to a delay in starting their daily activities as well as frustration.

Pain during insertion of suppository emerged as problem administering the suppository and enema. This may be due to the sensitive nature of surrounding tissues. Besides, the patient maybe not using lubrication supplied or insufficient lubricant was used. Reassessment and education in method of insertion would be beneficial in addressing this problem.

A third problem encountered by the participants was the texture of the suppositories. Due to its nature, the suppository might melt and become too soft to handle if stored at room temperature in the Malaysia's climate. Counseling about storage of suppositories would address this issue, as this can easily be overcome if the participants had access to a refrigerator. However, this is not always the case as some participants were students living

away from home and lacking such facilities. Some may be embarrassed to store medication requiring per rectum route of administration in a shared facility. Besides, upon checking on the latest edition of Guideline of Medication Counseling 3rd edition by Ministry of Health Malaysia, storage of suppository and enema was not emphasized in the checklist (Mohamad et al., 2019). Therefore, it may be beneficial for the stakeholders of the Guideline to emphasize on proper storage and special precautions to be taken on the usage of these medications in the counseling guide for achieving effective treatment in rehabilitation patients.

Time taken for the suppository or enema to act was found to cause frustration as the participants could not go about their day until they had completed their bowel care regime. According to Engkasan et al. (2013), the target time for a patient to complete their bowel routine is one hour. We anticipate education to patient or caregiver in administration technique to ensure the active ingredient contacts the mucosal lining of the rectum would also be beneficial.

Other problems encountered by the participants were insufficient supply of suppositories or enemas supplied by their healthcare facilities without explanation which leads to patient's self-innovative practice by filling water and soap in to an empty enema. Many patients in the rehabilitation setting are advised to use suppositories or enemas as part of a regular bowel program either on a daily or alternate day basis to provide a sense of structure and certainty to their days. Some of the causes for this is that there may genuinely be a difficulty in contracted company to supply the suppositories and enemas or that the person supplying the prescription does not understand that the participant is on a regular bowel program hence supplies prn (when necessary) quantities.

Hence, awareness of regular bowel program in rehabilitation patient should be raised among healthcare professionals for better understanding of patient's disease and the impact to their bowel function as well as patient's actual requirements on medication. Communication between healthcare personnel is essential. Detailed noting on prescription by medical officer and referral note (CP4 form) used between pharmacists of different facilities is important to notify officers on duty. These actions could enhance the service provided at the counter and allows officers to identify patients who is in need of the amount of medications in turn to achieve sufficient bowel intervention. Besides, notes added SPUB (*Sistem Pendispensan Ubat-ubatan Bersepadu*)

form or the pharmacy value-added service to officer in different facility to ensure continuity of supply plays a key role in addressing this problem.

Despite of the initial education which had been given to patients and caregivers, there could be a need of follow ups on bowel intervention assessment as there may be some changes on patients' health condition or lifestyle in long run. Altered disease condition, addition or change of medication from primary setting, dietary changes and other unanticipated factors which may lead to ineffective or insufficient treatment. Therefore, bowel intervention and medication reassessment and counseling are also suggested to run regularly in these patients in order to understand patient's condition as well as to explore difficulties faced by patients and caregivers from time to time.

5. CONCLUSION

This study findings revealed the practice of bisacodyl suppositories and Glycerin (25%) and NaCl (15%) enemas usage in rehabilitation setting. The study also demonstrated various challenges encountered by patients or their caregivers on administration of bisacodyl suppositories and Glycerin (25%) and NaCl (15%) enemas which include physical barriers such as limited mobility or lack of assistance on administration, pain on administration, insufficient medication supply, long waiting time on pass motion and difficulty on insertion due to altered health condition.

Interventions such as the provision of medication counseling and written information to patients as well as improved communication among health professionals may reduce barriers to effective use of these pharmaceuticals. Awareness of regular bowel program in rehabilitation patient should be raised among healthcare professionals to provide better understanding of patient's disease and the impact to their bowel function as well as patient's actual requirements on medication for ensuring sufficient supplies of medication.

Communication between healthcare professionals such as medical officer noting on prescription, referral form used between pharmacists of different facilities and notes added to SPUB form to ensure continuity of supply play a key role in addressing this problem. Emphasis on proper storage and special precautions to be taken on the usage of these medications in the counseling guide would be beneficial on achieving effective treatment in rehabilitation patients. As bowel intervention is often used for long

term, regular or scheduled bowel intervention technique reassessment and counseling in rehabilitation patients should be enforced in order to explore existing or new contributing factors of difficult bowel regime from time to time.

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[https://www.scirp.org/\(S\(1z5mqp453edsnp55rrgjt55\)\)/reference/ReferencesPapers.aspx?ReferenceID=1539276](https://www.scirp.org/(S(1z5mqp453edsnp55rrgjt55))/reference/ReferencesPapers.aspx?ReferenceID=1539276)
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Appendix: Survey Instruments/ Case Report Form

Section A: Patient Demographic Data

Please tick (/) in box below and fill in the answer in the appropriate space

Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female Age: _____	
Ethnicity: <input type="checkbox"/> Malay <input type="checkbox"/> Others <input type="checkbox"/> Chinese <input type="checkbox"/> Indian	
Marital Status: <input type="checkbox"/> Single <input type="checkbox"/> Married <input type="checkbox"/> Widow/widower	
Educational level: <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Tertiary: <input type="checkbox"/> Diploma <input type="checkbox"/> Degree <input type="checkbox"/> Master <input type="checkbox"/> Doctor of Philosophy	Occupational status : <input type="checkbox"/> Student <input type="checkbox"/> Employed <input type="checkbox"/> Unemployed <input type="checkbox"/> Retiree Others: _____

Section B: Use of Suppositories

Please tick (/) in box below and fill in the answer in the appropriate space.

Diagnosis: _____	
Medication: <input type="checkbox"/> Suppository <input type="checkbox"/> Enema	Duration of using suppositories or enema <input type="checkbox"/> <1 month <input type="checkbox"/> 1 – 6 months <input type="checkbox"/> >6 months
Administration by: <input type="checkbox"/> Self <input type="checkbox"/> Caregiver	
Lubrication/Aid: <input type="checkbox"/> None <input type="checkbox"/> KY Jelly <input type="checkbox"/> Lignocaine Gel <input type="checkbox"/> Water	Storage of suppositories: <input type="checkbox"/> Room temperature <input type="checkbox"/> Fridge Others: please specify _____
Are you aware of the counseling service in pharmacy? <input type="checkbox"/> Yes <input type="checkbox"/> No Specialist Clinic/Ward:.....	
Prescribed Frequency/pattern : <input type="checkbox"/> OD <input type="checkbox"/> EOD <input type="checkbox"/> other fixed regimes	

Section C: Questionnaire (please record when you start asking these questions)

1. Are you taking the medication (bisacodyl suppository or enema) as prescribed?
Adakah anda mengambil ubat (bisacodyl suppository or enema) seperti yang ditetapkan oleh doktor?
2. How do you use the suppository or enema?
Bagaimanakah anda menggunakan suppository atau enema?
3. What are the difficulties encountered while using the suppository or enema?
Apakah halangan yang ditemui semasa menggunakan suppository atau enema?

PAIN BELIEF AND ADHERENCE TO PAIN MEDICATIONS IN PATIENTS WITH NEUROPATHIC PAIN IN HOSPITAL REHABILITASI CHERAS

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ABSTRACT

Patients' beliefs about their pain are thought to play a prominent role in pain perception, function, and response to treatment. This study was aimed to determine pain belief and medication belief in patients with neuropathic pain, to compare the belief between different neuropathic pains medications prescribed and to determine the correlation between beliefs and medication adherence in patient with neuropathic pain. A cross-sectional survey using researcher assisted questionnaire was conducted in Outpatient Pharmacy involving patients prescribed with neuropathic pain medications (Pregabalin, Gabapentin and Amitriptyline) from August 2015 – May 2016. Data was analysed using SPSS Version 21. This study included 30 patients with a mean age of 51 ± 15 years. Most of them were Malay (66.7%) and not working (56.7%). Pain duration was 28.0 ± 35.8 months. A total of 63.3% of patients received Gabapentin as monotherapy. 83.3% of them experienced constants pain with a pain score of 4.9 ± 2 . Finding showed no statistical difference when compare pain belief and medication belief between medications ($p=0.970$ and $p=0.288$). This study also found that medication adherence has significant correlation with pain belief ($r=0.446$, $p=0.014$) but not with medication belief ($r=0.150$, $p=0.429$). This study showed that the type of anti-neuropathic agent does not affect pain belief and medication belief. Medication adherence has significant correlation with pain belief but not correlated with medication belief. Further research is needed to elucidate the relationship between pain belief and patient medication adherence, which can help to optimize the treatment and the adherence towards the medication.

Keywords: Medication Belief, Neuropathic Pain Medications, Pain Belief

ABSTRAK

Kepercayaan pesakit mengenai kesakitan mereka dianggap memainkan peranan penting dalam persepsi kesakitan, fungsi, dan tindak balas terhadap rawatan. Kajian ini bertujuan untuk menentukan kepercayaan kesakitan dan kepercayaan ubat terhadap pesakit dengan kesakitan neuropatik, untuk membandingkan kepercayaan antara ubat penyakit neuropatik yang berbeza yang ditentukan dan untuk mengetahui hubungan antara kepercayaan dan kepatuhan ubat pada pesakit dengan sakit neuropatik. Satu tinjauan keratan rentas menggunakan soal selidik yang dibantu oleh penyelidik dilakukan di Farmasi Pesakit Luar yang melibatkan pesakit yang diberi ubat sakit neuropatik (Pregabalin, Gabapentin dan Amitriptyline) dari Ogos 2015 - Mei 2016. Data dianalisis menggunakan SPSS Versi 21. Kajian ini melibatkan 30 pesakit dengan usia rata-rata 51 ± 15 tahun. Sebilangan besar mereka berbangsa Melayu (66.7%) dan tidak bekerja (56.7%). Tempoh kesakitan adalah 28.0 ± 35.8 bulan. Sebanyak 63.3% pesakit menerima Gabapentin sebagai monoterapi. 83.3% daripadanya mengalami kesakitan berterusan dengan skor kesakitan 4.9 ± 2 . Hasil kajian tidak menunjukkan perbezaan statistik ketika membandingkan kepercayaan kesakitan dan kepercayaan ubat antara ubat-ubatan ($p = 0.970$ dan $p = 0.288$). Kajian ini juga mendapati bahawa kepatuhan terhadap ubat mempunyai hubungan yang signifikan dengan kepercayaan sakit ($r = 0.446$, $p = 0.014$) tetapi tidak dengan kepercayaan terhadap ubat ($r = 0.150$, $p = 0.429$). Kajian ini menunjukkan bahawa kepercayaan kesakitan dan kepercayaan ubat tidak spesifik terhadap ubat dan kepatuhan terhadap ubat-ubatan mempunyai hubungan yang signifikan dengan kepercayaan kesakitan tetapi tidak dengan kepercayaan terhadap ubat. Penyelidikan lebih lanjut diperlukan untuk menjelaskan hubungan antara kepercayaan sakit dan kepatuhan terhadap ubat-ubatan pesakit, yang dapat membantu mengoptimalkan perawatan dan kepatuhan terhadap ubat.

Kata Kunci: Kepercayaan Terhadap Ubat, Kepercayaan Kesakitan, Ubat Sakit Neuropatik

1. INTRODUCTION

The prevalence of neuropathic pain in the general population is often estimated as 1.5% (Taylor, 2006). However, the prevalence of chronic pain with neuropathic characteristic was found to be 6.9% in the French general population (Bouhassira et al., 2008). Patients' beliefs about their pain are

thought to play a prominent role in pain perception, function, and response to treatment (DeGood & Shutty, 1992).

Specific pain beliefs that contribute to poor compliance, motivation, and misunderstanding about pain have been identified (Ramond et al., 2011). Evidence suggests that patients are often reluctant to use pain medication and that many patients have negative beliefs regarding analgesics (Chang et al., 2002; Gunnarsdottir et al., 2002; Yates et al., 2002). Dworkin et al. (2007) stated that pain medication taking by patients with neuropathic pain need to be taken continuously until the pain relieve goal is achieved.

In Malaysia, prevalence of chronic pain was found to be 7.1% in adult (NHMS III, 2006). Limited study had been done in Malaysia on pain and medication beliefs associated to neuropathic pain medication adherence. Most evidences were studied on pain related to cancer, rheumatoid arthritis and pain in general practice (Lai et al., 2002; Liang et al., 2013; Tracey et al., 2012). Identifying potentially modifiable factors which is component in pain belief and medication belief can influence adherence behavior is important, as strategies to support adherence can be tailored to individual patients' needs.

This study was done to evaluate the current status of pain beliefs, medication belief and adherent of patient with neuropathic pain in Hospital Rehabilitasi Cheras. The specific aims of the study, were to 1) determine pain belief and medication belief in patient with neuropathic pain, 2) compare beliefs between patient with neuropathic pain prescribed with different anti-neuropathic agents; Pregabalin, Gabapentin and Amitriptyline and 3) determine the correlation between beliefs & medication adherence in patient with neuropathic pain.

2. METHODS

This is a descriptive cross-sectional study using a structured, researcher-assisted questionnaire that was carried out in wards and Out-patient Pharmacy of Hospital Rehabilitasi Cheras. Data were collected using convenience sampling from August until December 2015. The respondents included were 18 years old and above and diagnosed with neuropathic pain. The study exclude respondent with cognitive impairment and illiterate in both Bahasa Malaysia and English. The research purpose was explained and those who agreed to participate will be consented to participate in this study. The sample size was calculated using equation was developed by Cochrane

(1963) with $p = 0.07$, desired confident level of 95% which yield $z = 1.96$ and $\pm 5\%$ precision ($e = 0.05$). The population data of adult patients in HRC during 2014 for 6 month was $N = 244$, hence the suggested sample size require for this study was 72 samples.

The data was collected by using the structured questionnaire (refer Appendix). The questionnaires were adopted from several studies and divided into four sections (patient demographic data, Morisky Medication Adherence Scale-8 [MMAS-8], Pain Belief Questionnaire [PBQ] and Belief on Medication Questionnaire [BMQ]). The MMAS-8 which contains seven questions with yes/no alternatives, and one question which features a 5-point Likert scale. The scores from completed questionnaires are categorized into “High” (score = 8), “Medium” (score 6 to < 8) and “Low” (score < 6) adherence groups. The PBQ consists of 12 items representing two scales, which are “organic” (8 items) and “psychological” (4 items). The BMQ consist of 3 components which is medication can be harm, overuse and benefit. Data were analysed using Statistical Package for Social Sciences (SPSS) Version 21. Descriptive statistics will be used to describe relevant variables such as demographic data and be presented in percentage, or means and standard deviations where appropriate. Analysis using Fischer exact tests will be used to compare differences between study groups. For beliefs, as the data will be using Likert’ Scale which is ordinal type data, comparison between the groups was analysed using non-parametric Mann-Whitney U test. Spearman’s correlation was used to describe the association between beliefs and medication adherence. All statistical tests were two-tailed and acceptable value for statistically significant was $p < 0.05$. The study was approved by Medical Research and Ethics Committee of Ministry of Health Malaysia (NMRR-15-858-25185).

3. RESULTS

There were 30 respondents where the Table 1 represents respondents’ demographic data. Majority of the patients 21 (70%) were male with mean age of 51 ± 15.7 years old. Most of them were Malay 20 (66.7%) and unemployed 12 (40%). Pain duration ranging from 2 to 156 month with mean of 28 ± 35.8 . Most patient (83.3%) experience constant pain with mean pain score 5 ± 2.1 . Majority of patient (63.3%) received Gabapentin as monotherapy.

Table 1: Demographic Characteristics of Study Population

Characteristic	n=30
Demographic Data	
Age	51 ± 15.7
Gender	
Male	21 (70%)
Female	9 (30%)
Ethnicity	
Malay	20 (66.7%)
Chinese	4 (13.3%)
Indian	6 (20%)
Religion	
Islam	20 (66.7%)
Buddhism	2 (6.7%)
Hindu	5 (16.7%)
Christian	1 (3.3%)
Others	2 (6.7%)
Marital	
Single	8 (26.7%)
Married	21 (70.0%)
Widow/widower	1 (3.3%)
Education	
Primary	6 (20.0%)
Secondary	14 (46.7%)
Tertiary	10 (33.3%)
Occupation	
Business	4 (13.3%)
Engineering	2 (6.7%)
Retiree	5 (16.7%)
Unemployed	12 (40.0%)
Others	7 (23.3%)
Pain Status	
Pain Duration	28 ± 35.8
Pain Score (0 to 10)	5 ± 2.1
Pain Frequency	
Constant	25 (83.3%)
Once a week	1 (3.3%)

Characteristic	n=30
Once a month	1 (3.3%)
Less often	3 (10.0%)
Satisfaction with current medication	
Very satisfied	3 (10.0%)
Satisfied	23 (76.7%)
Dissatisfied	4 (13.3%)
Current pain medication therapy	
Pregabalin	6 (20.0%)
Gabapentin	19 (63.3%)
Amitriptylline	0
Amitriptylline + Pregabalin	4 (13.3%)
Amitriptylline + Gabapentin	1 (3.3%)

An estimated 26 subjects (86.7%) were satisfied with current medication (Table 1) and 16 subjects have medium adherence (53%) toward their medication (Table 2). Both adherence level and satisfaction level were not statistically significant between medications ($p=0.206$, $p=0.184$) (Table 2 & Table 3).

Table 2: Adherence Level Based on Medication Taken

	n=30	Adherence			p-value
		low	medium	high	
	Pregabalin	0	3	3	0.206
	Gabapentin	6	10	3	
MEDICATION	Amitriptyline + Pregabalin	0	3	1	
	Amitriptyline + Gabapentin	0	0	1	

Table 3: Satisfaction toward Current Medication

n=30		Satisfaction		p-value
		satisfied	dissatisfied	
MEDICATION	Pregabalin	5	1	0.184
	Gabapentin	16	3	
	Amitriptylline + Pregabalin	4	0	
	Amitriptylline + Gabapentin	1	0	

Most respondents had agreed on each statement on pain belief except for statement PBQ2 “Physical exercise make pain worse” (n=18, 60%) (Table 4).

Table 4: Patient Agreement on Pain Belief and Medication Belief

	Disagree, n (%)	Unsure, n (%)	Agree, n (%)
<i>Pain Belief</i>			
PBQ1	5 (16.7)	13 (43.3)	12 (40.0)
PBQ2	18 (60.0)	5 (16.7)	7 (23.3)
PBQ3	10 (33.3)	7 (23.3)	11 (43.3)
PBQ4	4 (13.3)	9 (30.0)	17 (56.7)
PBQ5	1 (3.3)	8 (26.7)	21 (70.0)
PBQ6	2 (6.7)	5 (16.7)	23 (76.7)
PBQ7	3 (10.0)	4 (13.3)	23 (76.7)
PBQ8	2 (6.7)	11 (36.7)	17 (56.7)
PBQ9	2 (6.7)	3 (10.0)	25 (83.3)
PBQ10	10 (33.3)	4 (13.3)	16 (53.3)
PBQ11	2 (6.7)	6 (20.0)	22 (73.3)
PBQ12	2 (6.7)	3 (10.0)	25 (83.3)
<i>Medication Belief</i>			
BMQ1	14 (46.7)	8 (26.7)	8 (26.7)
BMQ2	7 (23.3)	10 (33.3)	13 (43.3)
BMQ3	15 (50.0)	9 (30.0)	6 (20.0)
BMQ4	6 (20.0)	9 (30.0)	15 (50.0)
BMQ5	5 (16.7)	7 (23.3)	18 (60.0)
BMQ6	8 (26.7)	6 (20.0)	16 (53.3)
BMQ7	4 (13.3)	5 (16.7)	21 (70.0)
BMQ8	7 (23.3)	8 (26.7)	15 (50.0)
BMQ9	16 (53.3)	7 (23.3)	7 (23.3)
BMQ10	18 (60.0)	6 (20.0)	6 (20.0)
BMQ11	8 (26.7)	10 (33.3)	12 (40.0)
BMQ12	5 (16.7)	12 (40.0)	13 (43.3)

75% of respondents agreed for the physiological component (PBQ4, PBQ6, PBQ9, PBQ12) and 55% agreed for the organic component (Chart 1).

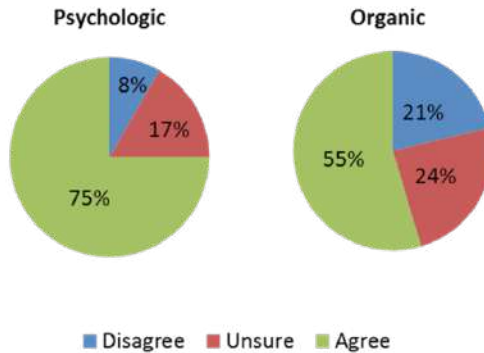


Chart 1. Pain Belief

For medication belief statements (Table 4), most respondents showed that they did not agree with statement of BMQ1 “All medication are poison” (n=14, 46.7%), BMQ3 “People who take medicine should stop their treatment for a while every now and again” (n=15, 50%), BMQ9 “Most medicine are addictive” (n=16, 53.3%) and BMQ10 “Medicine do more harm than good” (n=18, 60%). Based on Chart 2, 47% disagreed that medication can cause harm, 46% agreed that medication was overused to them and 58% belief that medication can give benefit.

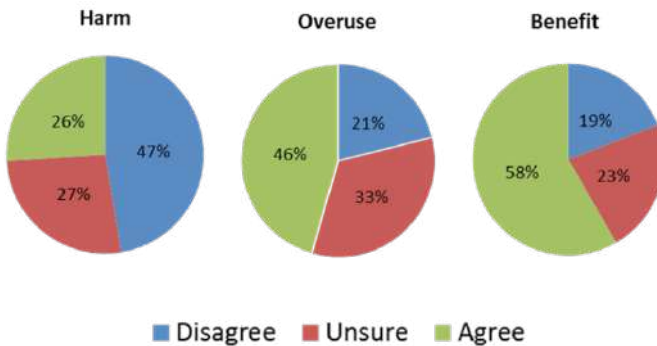


Chart 2. Medication Belief

Based on Table 5, pain belief between all medication has no different except for statement PBQ7 “Being in pain prevents you from enjoying hobbies and social activities” ($p=0.007$).

Table 5: Comparison On Pain Belief And Medication Belief Based On Current Medication

	Pregabalin (n=6)	Gabapentin (n=19)	Pregabalin +Amitriptylline (n=4)	Gabapentin +Amitriptylline (n=1)	p-value
	Mean Rank				
<i>Pain Belief</i>					
PBQ1	14.67	14.63	21.75	12.00	0.438
PBQ2	12.17	15.53	19.00	21.00	0.533
PBQ3	16.42	14.84	15.63	22.00	0.857
PBQ4	17.67	14.47	18.75	9.00	0.539
PBQ5	13.83	16.68	14.88	5.50	0.504
PBQ6	17.92	16.29	10.75	5.00	0.249
PBQ7	21.75	15.92	4.00	16.00	0.007
PBQ8	17.75	16.45	9.50	8.00	0.288
PBQ9	14.83	14.53	18.13	27.50	0.339
PBQ10	12.58	16.61	14.88	5.50	0.650
PBQ11	15.67	16.11	14.88	5.50	0.593
PBQ12	19.75	14.53	14.25	13.50	0.542
<i>Medication Belief</i>					
BMQ1	14.83	16.13	10.75	26.50	0.384
BMQ2	14.42	15.82	13.75	23.00	0.776
BMQ3	11.17	15.89	17.13	27.50	0.287
BMQ4	14.17	16.68	10.13	22.50	0.389
BMQ5	13.50	17.21	9.25	20.00	0.279
BMQ6	12.67	14.82	21.50	21.50	0.320
BMQ7	13.75	16.00	15.13	18.00	0.924
BMQ8	15.75	15.53	13.25	22.50	0.793
BMQ9	23.25	11.82	18.63	26.50	0.008
BMQ10	16.75	15.42	15.13	11.00	0.929
BMQ11	18.75	14.95	13.75	13.50	0.759
BMQ12	8.17	17.11	19.88	11.50	0.080

Medication belief between all medication also has no difference except for statement BMQ9 “Most medicine are addictive” ($p=0.008$). Both data were not statistically significant when comparing pain belief ($F=0.08$, $p=0.970$) and medication belief ($F=1.33$, $p=0.288$) between medications (Table 6). Using the Spearman correlation, this study showed that level of medication adherence has significant correlation with pain belief ($r=0.446$, $p=0.014$) but not with medication belief ($r=0.150$, $p=0.429$) (Table 7).

Table 6: Comparison On Pain Belief And Medication Belief Based On Current Medication

	Pregabalin (n=6)	Gabapentin (n=19)	Pregabalin + Amitriptylline (n=4)	Gabapentin + Amitriptylline (n=1)	F	p-value
<i>Pain Belief</i>						
Mean	43	42.3	41.7	42	0.08	0.970
<i>Medication Belief</i>						
Mean	35.8	27.4	36.3	44	1.33	0.288

Table 7: Correlation Between Pain Belief, Medication Belief And Level Of Adherence

	r	p-value
<i>Pain Belief</i>	0.446	0.014
Organic	0.516	0.004
Psychologic	0.054	0.778
<i>Medication Belief</i>	0.15	0.429
Harm	-0.091	0.633
Overuse	0.147	0.438
Benefit	0.219	0.246

4. DISCUSSION

This study assesses the relationship between pain belief and medication belief with adherence toward neuropathic pain medication. Most patients had higher agreement toward both component of pain belief (organic and psychological) which reflect their current condition of disability, depression and anxiety (Jensen et al., 2007). Organic pain beliefs contribute to the perception that pain is harmful and that control of pain is not possible (Tracey et al., 2012)

For medication belief, most patient agreed that medication can give benefit. Most patient showed positive belief in medications which reflect their needs of medication in order to cope with the pain (Lai et al., 2002).

There is no statistical difference when compare pain belief and medication belief between neuropathic pain medications in this study.

Patient have medium adherence toward their neuropathic pain medication and most patients were satisfied with current management. It may due to patients responded well to the lower doses of amitriptyline, pregabalin, and gabapentin with minimum side effects (Sanjay et al., 2017)

This study also found that medication adherence has significant correlation with pain belief ($r=0.446$, $p=0.014$) but not with medication belief ($r=0.150$, $p=0.429$). This study finding is similar to Vries et al. (2014) which found that no significant differences in medication beliefs with medication adherence in diabetes, hypertension and lipid lowering medication. On the contrary, study by (Lai et al., 2002; Park et al., 2018) showed the opposite finding where the patients with higher medication belief were more likely to adhere to their medications.

The main limitation of this study was small sample size. The result of this study is not representative of general population due to small sample size. Medication adherence may be reported to be higher than actual adherence as this study uses self-reported questionnaire to evaluate medication adherence. A combination of different assessment methods, such as pill count, medication monitoring system, or pharmacy claims data, might be useful to increase accuracy of medication adherence assessment.

5. CONCLUSIONS

This study showed that the type of anti-neuropathic agent does not affect pain belief and medication belief. Medication adherence has significant correlation with pain belief but not correlated with medication belief. Further research is needed to elucidate the relationship between pain belief and patient medication adherence, which can help to optimize the treatment and the adherence towards the medication.

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OROFACIAL TRAUMA INVOLVING “MOSQUITO BICYCLES” IN PAEDIATRIC PATIENTS: AWARENESS AND PREVENTIVE MEASURES

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ABSTRACT

“Mosquito bicycle”, also known as “basikal lajak”, is a modified regular bicycle that is popular among Malaysian teenage boys. “Mosquito bicycle” riding activity is considered dangerous and against the law as it is modified to be light weight, short handles, and the brakes are usually taken out, for the rider to assume in low racing position at high speed. A penalty of maximum RM300 for a first time offender; or RM1000 or a total of 3 months in prison for the second time offender may be issued out by the Malaysia Road Transport Department. The parents or guardian of the offender also may be sentenced to not more than RM5000 or not more than 2 years in prison, or both if found guilty according to Section 33 Child Act 2001 with offence to leave child without reasonable supervision. This paper is to report on orofacial trauma involving mosquito bicycles in paediatric patients in Kajang, Malaysia, and to discuss the necessary preventive measures and awareness against this activity. All three cases bear similar mechanism and pattern of injury. This case series found that the most commonly traumatised tooth in dental trauma associated with “mosquito bicycle” accident is upper central incisors that affect all three patients (100%), followed by lateral incisors (67%). All patients (100%) sustained multiple abrasion wound on face, 67% of patients suffered laceration wound of upper lips, only one patient (33%) had laceration wound over the tongue. Awareness and preventive measures should be applied to halt this dangerous activity.

Keyword: Dental Trauma, Mosquito Bicycle, Orofacial

ABSTRAK

Basikal lajak adalah sejenis basikal yang telah diubah suai dan menjadi terkenal di kalangan remaja lelaki Malaysia. Aktiviti menunggang basikal lajak adalah merbahaya dan salah di sisi undang-undang. Basikal lajak dimodifikasi supaya menjadi ringan, mempunyai pemegang yang pendek dan brek basikal selalunya dikeluarkan supaya penunggang boleh menunggang basikal tersebut pada posisi rendah dan pada halaju yang tinggi. Jabatan Pengangkutan Jalan Malaysia telah menetapkan penalti sebanyak maksimum RM300 atau jika sabitan itu disabitkan kali kedua atau kemudiannya boleh didenda sebanyak RM1,000 atau penjara bagi tempoh tiga bulan. Ibu bapa atau penjaga pula boleh dikenakan hukuman denda tidak melebihi RM5000 atau dipenjarakan selama tempoh tidak melebihi dua tahun atau kedua-duanya jika disabitkan kesalahan mengikut Seksyen 33 Akta Kanak-Kanak 2001 kerana membiarkan kanak-kanak tinggal tanpa pengawasan yang berpatutan. Kertas laporan ini bertujuan untuk melaporkan trauma pada bahagian orofasial yang melibatkan basikal lajak di kalangan pesakit kanak-kanak di Kajang, Malaysia dan untuk membincangkan tentang langkah-langkah pencegahan dan kesedaran bagi membendung penularan aktiviti ini. Kesemua kes dilaporkan mempunyai mekanisma kecederaan yang sama. Kecederaan gigi yang paling tinggi (100%) adalah pada gigi insisor sentral maksila, disusuli dengan gigi insisor lateral (67%). Kesemua pesakit mengalami luka geseran pada muka (100%), 67% pesakit mengalami luka laserasi pada bibir atas, hanya seorang pesakit (33%) mengalami luka laserasi pada lidah. Kesedaran dan langkah pencegahan perlu diaplikasikan untuk membendung aktiviti bahaya ini.

Kata kunci: Basikal Lajak, Kecederaan Gigi, Orofasial

1. INTRODUCTION

Bicycle riding is a popular form of recreation for many, and related injuries cause significant morbidity and mortality. An injury caused by fall from bicycle ranged from a simple soft tissue injury to severe traumatic life-threatening head injury. The use of bicycle helmet reduces risk of head injury by 65% (Thompson et al., 2003). However, bicycle helmet has lack of protection for the lower part of the face, thus wearing helmet does not significantly reduces the risk of dental traumas.

“Mosquito bicycle” is known as ‘*basikal lajak*’, or formerly known as ‘*basikal nyamuk*’ in Malaysia. “Mosquito bicycle” is usually a modified regular bicycle to perform the superman-like stunt. The bicycle is modified

to have short handles and no brakes which enable its rider to assume a low racing position at high speed, performing a dangerous superman stunt. To get more adrenaline rush during performing the superman stunt, mosquito bicycle riders are often seen not wearing any protective measures such as bicycle helmet. The face of rider is exposed to injury when the bicycle is thrown forward. The modifications made to a bicycle to become a mosquito bicycle are, the front fork was lowered and the handlebars were modified to allow it's rider to accelerate and to support the chest. The bicycle frame was also lowered to get a lower centre of gravity for easier balancing. Meanwhile, the rims were changed to plastics in order to reduce the bicycle weight. Mosquito bicycle is popular among Malaysian teenagers since year 2017 till now.

Modification service for mosquito bicycle is available in majority local bicycle shops. Malaysian teenagers can afford such services as the cost ranges only between RM 200 to RM 800. "Mosquito bicycle" riders are often in large groups during long term breaks. It is regarded as a recreational activity.

The awareness of "mosquito bicycle" riding is important to halt this activity as mosquito bicycle rider is well known as mat rempit aspirant. The awareness should be delivered in form of health promotion week in school or motivational talk given by the authorities to the targeted group including teachers, parents and the school children.

The purpose of this case series is to report the common types of orofacial trauma caused by mosquito bicycle, its management and preventive measures.

2. METHODOLOGY

This paper reports on series of cases seen at Kajang Hospital, Malaysia. The cases were attended by on-call paediatric dental officers in Emergency Department, where emergency treatment were carried out, and further follow up at Department of Paediatric Dentistry, Kajang Hospital.

3. CASE PRESENTATION

Case 1: A 13 years old, Malay, boy history of alleged "mosquito bicycle" race. He claims to be riding downhill at high speed and hit the bumper, thus thrown forward, with his face hitting the road. Extra orally, patient sustained multiple abrasion wounds over the left side of facial region and

laceration wound with skin loss on left upper lip. Otherwise, patient was able to ambulate well. Intra orally, patient sustained avulsed upper right central incisor, uncomplicated crown fracture of upper right lateral incisor, complicated crown fracture of upper left central and lateral incisors, and uncomplicated crown fracture of lower anterior incisors. Patient also sustained laceration wound on anterior 2/3rd of the tongue. On the day of trauma, toilet and suturing of the laceration wounds were done, avulsed upper left central incisor irrigated with normal saline, replanted and secured with flexible stainless steel wire and flowable composite from upper left canine to upper right canine, mesial and distal interdental papilla of upper left central incisor was sutured. Cvek pulpotomy was carried out for upper left central and lateral incisors, while composite bandage of upper right central and lateral incisors, and lower anterior incisors were done. Patient was given a course of an analgesics, antibiotics and mouthwash.

Root canal treatment of upper left central incisor was initiated followed by stainless steel wire removal on the 10th day post trauma follow up. The canal was dressed with non-setting calcium hydroxide.

After 6 months post trauma follow up, internal root resorption on upper right central incisor was noticed after taking an intraoral periapical radiograph. The tooth was deemed poor prognosis and may require extraction and replacement with prosthesis. Patient is still has on- going treatment.

During first follow up, we do emphasize on prevention of the injury, which mostly localised around the lower part of the facial region. Apart from obvious awareness that one should not ride such dangerous vehicle, we also advise regarding need for head gear for protection such as full size helmet and mouth guard. This will reduce the severity of injuries sustained greatly, if they choose to ignore the first awareness and ride along the mosquito bicycle anyway. Thus in future, awareness about the seriousness and dangerousness of this particular activity is still the best method of prevention.

Case 2: A 14 year old, Malay boy was riding a “mosquito bicycle” from home to a nearby shop, while his bicycle allegedly skidded and he fell forward with face hit ground first. Extra orally, patient sustained multiple abrasion wounds at the vertical middle third of the face. Otherwise, patient is able to ambulate well. Intra orally, patient sustained multiple dental injuries, which are, subluxation of upper right central, lateral incisors and upper left lateral incisors with mobility grade one, complicated crown fracture of upper

left central incisor, and avulsed lower left central incisor, and lower right central and lateral incisors. Patient also had laceration wounds on upper and lower lips.

On the day of trauma, toilet and suturing of laceration wound and upper left central incisor was bandaged with glass ionomer cement. The avulsed teeth were not found, hence no replantation of teeth were done. Patient came for follow up the next day with infected wound and dislodged glass ionomer cement on upper left central incisor, therefore, wound debridement and re-suturing was done. Dycal and glass ionomer cement bandage were placed on upper left central incisor. Patient was given a course of an analgesic, antibiotic and mouthwash.

On the 11th day of follow up, although the intraoral periapical radiograph showed that there is widening of periodontal ligament, all the upper anterior teeth were still vital; therefore, the upper left central incisor was restored with packable composite.

Unfortunately, the upper left central incisor lost its vitality after another two weeks of follow up whereby it manifested with swelling of the upper lip and philtrum region; raised upper labial sulcus from upper right central incisor to upper left lateral incisor region was also noted. Another intraoral periapical radiograph was taken showed that there is a radiolucency at apical of upper left central incisor with widening of periodontal ligament space on mesial and distal region of root. First visit of root canal treatment was carried out. Patient defaulted follow up after that.

Similarly, this patient also sustained his injury without using any type of facial protection while engaging the riding activity. First follow up had been used as medium to spread awareness regarding how dangerous this activity can be, which may result in his tooth losing vitality. The fact that this particular patient has defaulted further follow up also means that there are many more campaign and awareness need to be done by relevant authority to ensure young population able to comprehend the effect of this dangerous activity.

Case 3: A 12 years old, Malay boy was riding a mosquito bicycle on a slippery road, allegedly tripped and fell with face hitting road first. Extra orally, patient sustained multiple abrasion wound on the left side of face. Otherwise, patient was able to ambulate well. Intra orally, he sustained multiple dental injuries, which are, uncomplicated crown fracture of upper central incisors

and complicated crown fracture of upper left canine. Laceration wound was also noticed at left upper labial mucosa.

On the day of trauma, emergency treatment was done. Toilet and suturing of laceration wound and glass ionomer cement bandage on upper central incisors were carried out. A course of an analgesics, antibiotic and mouthwash was prescribed.

Patient was seen again after two days but the wound was infected. Wound debridement and re-suturing was done. Cvek pulpotomy was also carried out on upper left canine to preserve its vitality. The upper left canine remains vital after 4th month post trauma follow up. Patient still has on-going follow up with our facility.

The safety measures of riding a bicycle was emphasized to this patient during follow-up. Patient was informed the danger of riding a bicycle without any braking system and without wearing a proper head gear. Patient was also informed the guarded prognosis of the fractured teeth resulted from the incident due to mosquito bicycle riding activity.

4. DISCUSSION

In 2012 the Royal Malaysian Police reported that there were more than 400,000 road traffic accidents throughout the country. The high numbers of those injured due to road traffic accidents is a major burden to our health care system (Hospital Sultanah Aminah Trauma Registry, 2012).

In this case series, all of trauma is observed within the range of patient age 12-14 years old. This proportion is within the range reported in local literature, which varies from approximately 20% (Wymann et al., 2008) to 30%. In covenant with the literature (Cole et al., 2009), majority of our dental trauma patients that were treated are boys compared to girl (approximately 4:1). This suggests that participations of male gender in sports and dangerous activities are more prominent compared to female gender.

Generally, we did not see much referral for dental trauma in child less than 6 years old due to the protective environment that they live in, but contrariwise for children above 6 years old, road accidents are the main cause of facial trauma. In an infant, due to the cranium-face ratio of 8:1, facial trauma to this age group are more likely resulting in fracture of cranium, whereas in older age group, the face become more prone to fracture and superficial tissue injury. This is partly due to the development of paranasal sinus and the cranium-face ratio is down to 2:1. Older age group patients

as discussed in this case series all experience dental fracture as opposed to cranial fracture.

All three cases denoted in this case series bear similar mechanism and pattern of injury. The root measure that can prevent these injuries from ever happening is not seen to be taken place due to the nature of the activity itself. In Malaysia, usage of “mosquito bicycle” is associated with group of lawless children or adolescent, thus safety measures are not always their first and foremost priority.

In accordance with literature (Elkarmi et al., 2015), our case series found that the most commonly traumatised tooth in dental trauma associated with mosquito bicycle accident is central upper incisors that affect all three patients (100%), followed by lateral incisors (67%). As predicted, 67% of patient also suffered laceration wound of upper lips. This is a small sample size, but pattern of injury may indicate there is a predilection factors in the oral cavity, such as dental overjet or incompetent lips.

Traumatic orofacial injuries must be treated promptly and appropriately in order to reduce the costs, suffering and save time for patients, family and health care givers. After an immediate and emergency treatment, a follow-up, mainly to prevent possible late complications is usually required.

The most serious dental injury is avulsion of tooth. It is seen in 0.5 to 3% of all dental injuries (International Association of Dental Traumatology, 2013). Choice of treatment for avulsed tooth depends on the maturity of the root and the periodontal ligament cells condition. In this case series, all avulsed teeth were found in a dry and dirty condition. The teeth had an extra-oral time of more than 60 minutes and were carried without a suggested storage medium such as milk, Hanks balanced storage medium, saliva or normal saline. Therefore, the periodontal ligament cells of the teeth are not viable.

Although the avulsed teeth were not kept in storage medium and were told to have poor long- term prognosis, the teeth are still replanted. Apart from restoring the teeth for aesthetic, functional and psychological reason, these teeth were replanted to maintain alveolar bone contour. The patients and their guardians were informed that the replanted tooth may become ankylosed and resorption of the root may take place. They were also mentally prepared to replace the teeth with removable prosthesis.

Cvek pulpotomy or partial pulpotomy was carried out for teeth that sustained complicated crown fracture, whereby the pulp is exposed. The inflamed pulp tissue beneath an exposure is removed to a depth of one to three millimetres or more to reach the deeper healthy tissue. Pulpal bleeding is controlled and the site is covered with calcium hydroxide. The goal of this treatment is to preserve the teeth's vitality and to allow immature teeth to continue normal root development or apexogenesis (American Academy of Pediatric Dentistry, 2020).

Early restoration of uncomplicated crown fractured teeth has better long-term prognosis (Cem et al., 2007). Invasion of dentinal tubules by bacteria via exposed dentin is a point of concern in delayed restoration.

However, all of the above could be avoided with a better prevention program. The key is how well the programs are disseminated and circulated among community, teachers and students themselves. One suggestion is to integrate the subject of road safety into national curriculum, thus ensure all layers of community had a basic principle of do and don't on this matter. Other proposition is enhanced stricter control and higher fine for the perpetrator of Mosquito bicycle.

5. CONCLUSIONS

This paper highlighted that "mosquito bicycle" activities may bear grave consequences due to its very dangerous nature. Lack of awareness among the riders must be tackled, as usage of protective gears such as helmet and mouth guard are strongly recommended. Relevant authorities such as Police and Road and Transport Department also should play a role in halting this dangerous activity by illegalized hazardous bicycle modification and imposing fine to riders that did not adhere to safety measures. In the future, any project regarding the promotion of bicycle safety should incorporate paediatricians and dentists, in order to encourage broader awareness and acceptance from the public.

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FOOD SAFETY KNOWLEDGE AND PRACTICES AMONG ADULT CONSUMERS

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ABSTRACT

The objective of this study was to evaluate the level of food safety knowledge and practices among adult consumers in Kuching and Samarahan, Sarawak. Data on socio-demographics, food safety knowledge and practices were collected from 329 consumers using questionnaires that covered general topics in food safety including food poisoning, food contamination, temperature control, food storage, personal hygiene, food hygiene and environmental hygiene. The questionnaires were distributed online through social media applications such as Facebook and WhatsApp. Results revealed that consumer were knowledgeable in certain aspect such as bacteria causing food borne illness (73.6%), symptom of food poisoning (98.8%) and food contamination (96.4%) but inadequate when it comes to questions on right internal temperature of cooked food (46.2%), temperature of refrigerator (52.3%) and the way reheated food (46.2%). Consumers also excel in practices of food safety such as hand washing (93.6%), food expiration date (95.8%) and environmental hygiene (93.0%). As a conclusion, consumers have a basic knowledge of food safety but there are certain parts still need to be improved and can be translated aspects practices.

Keywords: Consumers, Food Safety Knowledge, Food Safety Practices

ABSTRAK

Objektif kajian ini adalah untuk menilai tahap pengetahuan dan amalan keselamatan makanan di kalangan pengguna dewasa di Kuching dan Samarahan, Sarawak. Data mengenai sosio demografi, pengetahuan dan amalan keselamatan makanan dikumpulkan dari 329 pengguna dewasa menggunakan

soal selidik merangkumi topik keselamatan makanan termasuk keracunan makanan, pencemaran makanan, kawalan suhu, penyimpanan makanan, kebersihan diri, kebersihan makanan dan kebersihan persekitaran. Soal selidik ini dijalankan secara atas talian melalui aplikasi media sosial seperti Facebook dan WhatsApp. Hasil kajian mendapati bahawa pengguna adalah mempunyai pengetahuan dalam beberapa aspek seperti bakteria yang menyebabkan penyakit bawaan makanan (73.6%), gejala keracunan makanan (98.8%) dan pencemaran makanan (96.4%) tetapi kurang memuaskan bagi soalan seperti suhu dalaman makanan yang dimasak (46.2%), suhu peti sejuk (52.3%) dan cara memanaskan semula makanan (46.2%). Pengguna juga didapati cemerlang dalam aspek amalan keselamatan makanan seperti mencuci tangan (93.6%), mengenal pasti tarikh luput makanan (95.8%) dan kebersihan persekitaran (93.0%). Sebagai kesimpulan, secara amnya pengguna dewasa mempunyai pengetahuan asas mengenai keselamatan makanan. Walaubagimapun, terdapat aspek tertentu yang perlu diperbaiki dan ditambah baik supaya dapat diterjemahkan menjadi amalan.

Kata Kunci: *Pengguna, Pengetahuan Keselamatan Makanan, Amalan Keselamatan Makanan*

1. INTRODUCTION

Food borne illness, especially cases of food poisoning are increasing from year to year. This food borne illness affects health by involving various ages among consumers. Food poisoning seems to be taken lightly by society as a consumer. In Malaysia, incidence rate of food poisoning is reported to increase from 45.51 in 2018 to 50.90 in 2019 per 100,000 populations (Ministry of Health Malaysia, 2020). Improper food handling practices will result in cross-contamination or re-contamination that can contribute to food poisoning. Perez-Rodriguez et al. (2008) have defined cross-contamination as non specified terms referring to the transfer, direct or indirect, of bacteria or viruses from contaminated products to unpolluted products. Low levels of personal hygiene among consumers and food handlers are one of the practices that are often reported to contribute to food borne illness (Lues & Van Tonder, 2007).

Improper food handling practices and lack of food safety education in food preparation is among the factors that spread the epidemic of food

borne diseases in Malaysia (Sharifa Ezat et al., 2013). Potential health risks are often associated with food contamination caused by *Escherichia coli* (*E. coli*), *Salmonella typhii*, *Pseudomonas* species, *Staphylococcus aureus* and *Proteus* species during preparation, post-cooking and other stages of operation (Hanashiro et al., 2005). It is important for consumers to have knowledge of food safety and practices when handling food especially those at higher risk of developing food borne illness such as children, the elderly and pregnant women. According to Surujlal and Badrie (2004), at home behaviour of the consumers may act like a good reflection of their knowledge or at least what they believe regarding food safety. Sanlier (2010), also reported people of all ages seem to think that they know how to handle food safety, but their self-reported food handling does not support this self-belief. World Health Organization has developed five main keys to safer food, which include keeping clean, separating raw and cooked food, cooking thoroughly, keeping food at safe temperature and using safe water and raw materials (World Health Organization, 2007).

There are many studies on food safety knowledge, attitudes and practices have been conducted by external and local researchers in different target groups (Nada et al., 2019; Magdevis et al., 2012; Hasan & Dimassi, 2014; Liu et al., 2014; Lamgiano et al., 2012). To date, in Malaysia more studies on food hygiene have been conducted on food handlers in restaurants, schools and other commercial sectors (Lee et al., 2017; Lataf et al., 2018; Sayuti et al., 2020). Therefore, this study focuses more on evaluation Sarawakian adult consumers on food safety knowledge and practice.

2. METHODOLOGY

2.1 Study Area

A cross-sectional online survey was conducted from April to May 2020 on food safety knowledge and practices of consumers in Kuching and Samarahan, Sarawak. The questionnaire was distributed through social media, such as Facebook and WhatsApp applications.

2.2 Study Design

The 20 item questionnaires used in this study had been adapted from previous studies (Byrd-Bredbenner et al., 2007; Sanlier, 2010; Lubos, 2014; Nur Izyan et al., 2019). The questionnaire was pilot study test for clarity and validity among 20 randomly voluntary consumers. Initially an English version of

the questionnaire was developed then it was translated into Bahasa Melayu. The revised questionnaires were divided into three sections consisting of personal and socio demographic, knowledge and practice on food safety. Section I focused on consumers' socio-demographic including age, gender, academic qualification, ethnicity and employment status. Section II was on knowledge related to food safety and included 10 multiple choice questions. These questions covered general food safety knowledge such as food poisoning, food contamination, storage, and time and temperature control. Section III of the questionnaire covered also 10 questions about personal hygiene, food hygiene and environmental hygiene. A 3-point Likert scale consisting of 'never', 'sometimes' and 'always' was used as a response options. Data collected from this study were processed and analysed using statistical packages (SPSS version 24).

3. RESULTS

3.1 Demographic Profile

The socio-demographic data including gender, age, working status and level of education of the respondents are presented in Table 1. The results show that 55.6% of the respondents are female and 44.4% are male respondents. As to age, 44.7% of the respondents aged 19-29 years old. The rest aged 30-39 years old (24.6%), 40-49 years old (21.9%) and more than 50 years old at 8.8%. More than half of the total respondents are Malay (59.6%) and 40.4% includes Chinese, Bidayuh, Iban and others. All respondents completed their formal education with 83.6% having certificate education level. As to working status, 58.7% of the respondents are working while 41.3% are not working. From the total respondents of 329, 61.7% and 38.3% of the respondents are lives in Kuching and Samarahan.

Table 1: Demographic Profile

Variables	Frequency	Percentage (%)
Gender		
Male	146	44.4
Female	183	55.6
Age		
19-29	147	44.7
30-39	81	24.6
40-49	72	21.9
>50	29	8.8
Ethnicity		
Malay	196	59.6
Chinese	15	4.6
Bidayuh	40	12.1
Iban	40	12.1
Others	38	11.6
Level of education		
Primary school	4	1.2
Secondary school	50	15.2
Certificate/Diploma/Degree	275	83.6
Working status		
Working	193	58.7
Not working	136	41.3

3.2 Consumers Knowledge of Food Safety

Table 2 represents the knowledge of the consumers on food safety that covered questions about food poisoning, cross contamination, temperature control and storage. Results of survey on the knowledge of food poisoning show all the respondents familiar with bacteria that can contaminate food. More than half (73.6%) of the respondents at least know or heard about *E. coli*, *Salmonella* and *Bacillus cereus* can cause food borne illness. Diarrhea (89.4%) is the most prevalent symptom of food poisoning identified, followed by vomiting (9.4%) and nausea (1.2%). Surprisingly, 79.3% of the respondents answered did not know how to recognize spoiled food. 96.4% of the respondents answered correctly the question about food

contamination. This indicates that the respondents know something that should not be in the food. Knowledge on temperature control and storage shows, more than half of the respondents (52.3%) answered correctly the question about recommended temperature of the refrigerators. But, 15.2% of the respondents had no idea about the recommended temperature. Less than half of the respondents (46.2%) are aware about the internal temperature of food or danger zone. Respondents typically store their excess food for the next day (62.0%) but only 46.2% of the respondents bring the food to boil. Many of the respondents (52.0%) reheat their food until hot enough and can consume. Unfortunately, 1.8% did not reheat their food before consume after period of time. Majority of the respondent (69.0%) answered correctly for question cooked food should not left for more than four hours at room temperature.

Table 2: Consumers Knowledge of Food Safety

Question	Answer
What are the most common bacteria that can cause food borne illness?	<i>E. coli</i> (45.0%) <i>Salmonella</i> (22.5%) <i>Bacillus cereus</i> (6.1%) All of the above (26.4%)
How to recognize spoiled food?	Smelling it (9.5%) Tasting it (8.5%) Looking at it (2.7%) None of these (79.3%)
What is common symptom of food poisoning?	Headache (0.0%) Diarhea (89.4%) Vomiting (9.4%) Nausea (1.2%)
Insect such as cockroaches is a food contamination	Yes (96.4%) No (1.8%) Don't Know (1.8%)
What do you do if you find food purchased contaminated or spoiled?	Just throw it away (42.2%) Report a complaint (15.6%) Feedback to the seller (42.2%)

What is the recommended temperature for a refrigerator?	12 °C (15.8%) 4 °C (52.3%) Below 0 °C (16.7%) Don't know (15.2%)
All foods are considered safe when cooked to an internal temperature of	54 °C (4.6%) 60 °C (24.3%) 66 °C (46.2%) Don't know (24.9%)
What do you do if there is an excess of food?	Throw it away (21.0%) Save for the next day (62.0%) Give to neighbours (17.0)
Cooked food should not left for more than 4 hours at room temperature	Yes (69.0%) No (14.6%) Don't Know (16.4%)
How do you reheat food?	Do not reheat food (1.8%) Bring to a boil (46.2%) Until hot enough (52.0%)

3.3 Consumer Practices of Food Safety

Table 3 shows consumer practices towards food safety. Respondents were asked about questions related to personal hygiene, food hygiene and environmental hygiene. Majority respondents (93.6%) washed their hand with soap and water before prepare food and more than half (57.8%) of the respondents always use paper towel to dry their hands after washing. Respondents generally cover cooked foods (93.6%), checked the expiration date of the food purchased (95.8%) and washed fruits and vegetables before eats (98.2%). 8.8% and 36.4% of the respondents answered 'never' and 'sometimes' used the different cutting boards to cut raw food and ready to eat food respectively. More than half of the respondents stored their excess food after 2 hours in the refrigerator (54.4%) and taste the leftover first to make sure the food still safe before consume again (75.4%). 81.8% of the respondents wash eggs before breaking the egg shell. Almost 100% of the respondents were look at the food handler and the environment first before buying food at the stall. Respondents generally have some knowledge and practice food safety in their daily lives.

Table 3: Consumers Practices of Food Safety

Statement	Never	Sometimes	Always
I wash my hands with soap and water before food preparation	0 (0.0%)	21 (6.4%)	308 (93.6%)
I use paper towel to dry my hands after washing them	6 (1.8%)	133 (40.4%)	190 (57.8%)
I always cover cooked foods	3 (0.9%)	6 (1.8%)	320 (97.3%)
I store excess food after 2 hours in the refrigerator	18 (5.5%)	132 (40.1%)	179 (54.4%)
I check the expiration date of the food purchased	2 (0.6%)	12 (3.6%)	315 (95.8%)
I use different cutting boards to slice raw meat and to cut apples	29 (8.8%)	120 (36.4%)	180 (54.7%)
I wash fruits and vegetables before eating them	0 (0.0%)	6 (1.8%)	323 (98.2%)
I taste the leftovers to check if they are still safe	13 (1.05)	68 (20.7%)	248 (75.4%)
I wash eggs before cracking eggshells	4 (1.1%)	56 (17.0%)	269 (81.8%)
I will look at the food handler and the environment first before buying food at the stall	2 (0.6%)	21 (6.4%)	306 (93.0%)

4. DISCUSSION

The main objective of this study is to determine the food safety knowledge and practices among adult consumers in Kuching and Samarahan, Sarawak had been achieved. Results of this study showed that consumers had good level of food safety knowledge and practices. Ma et al. (2019) also reported the same finding which is consumers have appropriate levels of food safety knowledge and attitude compared to food handler. The respondents represented a high percentage of Malay (59.6%), female (55.6%), 44.7 consumers aged 19-29 years old, had higher education (83.6%) and working (58.7%). It is common, when online survey obtains a higher rate from young persons and those with

more formal education and had income (Bhrun & Schutz., 1998). In this study, more than half consumers knew that *E. coli*, *Salmonella* and *Bacillus cereus* can cause food borne diseases. Previous study by Kennedy et al. (2005) reported, 92.9% respondents having heard of *Salmonella* and *E. coli* O157 (77.0%). Ma et al., (2019) reported, less than half of the respondents knew about Hepatitis A, *Salmonella* and *Staphylococcus* were pathogens responsible for food borne diseases. In another study, Theng et al. (2017) carried out a survey to consumers in night market in Kuala Lumpur and Selangor revealed, less than 30% of the consumers answered correctly about food borne pathogens. In this study, even though the consumers had knowledge about food borne disease bacteria, but more than 70% do not know how to recognize spoiled food. Spoilage bacteria cause food deterioration and develop unpleasant odour, taste and texture. But in practices part, 75.4% consumer's stated that they generally tasted the leftover food to make sure the food was spoiled or not. Ministry of Health through the Food Safety and Quality Division is constantly promoting measures to identify spoiled food: *Lihat, Hidu, Rasa*. However, such promotion or training should be carefully planned and implemented in order to yield significant improvements in consumer's attitudes and/or practices (Ncube et al., 2020).

One of the important parts in food safety knowledge is a temperature control and storage. Improper storage or holding temperature is a common factor contributing to food borne illness (Muyanja et al., 2011). In general, food that cannot be consumed within 2 hours should be discarded. Microorganisms grow rapidly between 5°C and 60°C (danger zone) and most bacteria grow and multiply quickly between 25°C and 40°C (Erganul et al., 2013). World Health Organization (1996) reported that foods that are cooked immediately prior to consumption are safer than those which have been cooked and stored at ambient temperature. In this study, consumers show poor knowledge regarding the internal temperature or danger zone (53.8%). However, many of the consumers (52.3%) are aware of the refrigerator temperature and this result is similar to Lataf et al. (2018) and Ncube et al. (2020). By knowing the temperature of refrigerator or freezer can lessen the risk of food spoilage and effects on food safety (Abdul-Mutalib et al., 2012). Previous studies have showed majority of their respondent's inadequate knowledge about acceptable refrigerator temperature range (Kennedy et al., 2005; Theng et al., 2017). Most of the consumers (62.0%) recycled cooked food for the next day and only 46.2% of the consumers reheated the cooked

food until boil before eating again. Reheating cooked food is main step for eliminating hazards from improper storage and holding temperature. Reheating at low temperature ($<40^{\circ}\text{C}$) for a few minutes increased the risk of *Salmonella* contamination in cooked foods (Cardinale et al., 2005). World Health Organization (1992) indicated that if food cannot be served immediately, it should be kept hot or cooled down rapidly and reheated completely to a temperature of at least 70°C before eating.

The level of consumer's practices is good with a percentage score above 50% of the respondents always practices hygienic and safety. At least 90% of the consumers agreed that hands should be properly washed and clean before preparing the food. Lataf et al. (2018) reported, 56% respondents washed their hands according to the seven steps of hand washing before or after doing work. A previous study revealed that the bacterial count on hands exceeded the safe threshold levels (Lee et al., 2017). Failure to wash hands, during food preparation, serving, after using toilet, sneezing and coughing may contribute to the incident of food borne illness outbreaks (Muyanja et al., 2011). Food and Agriculture Organization (1997), reported hands are important in contamination and the spreading of fecal oral transmitted bacteria and the risk raise when bare hands are used to serve food. Separate used of cutting board for raw and ready to eat food can prevent cross contamination.

A study done by Lim et al. (2016) in Sabah, Malaysia demonstrated poor food safety attitude regarding usage of cutting board, knife washing and storage of freshly cooked foods. In this study, more than 50% of the consumers always used different cutting board for raw and meat and vegetables. Lack of knowledge and hygiene practices resulted in 45% of consumers using the same cutting board for all types of food. Cross contamination can be prevented if the consumers practice the safe way of washing cutting board with soap and water/sanitizer between using it to cut raw meat and chop vegetables (Sanlier, 2010). However, by using the different cutting board for raw foods and ready to eat food is a best way to avoid cross-contamination. Majority of the consumers showed that they checked the expiration date of the food purchased and this is a good practice to avoid the risk of food poisoning. Generally, food eaten after expiration date will lose its freshness and quality and also can increased of microbiological occur (Erganul, 2013). *Salmonella* is a potential food safety concern with eggs. In Table 3, majority of the consumers answer goes to 'always' for question wash egg before

cracking the egg shell. This coincides with the recommendation of the Food Safety and Quality Division, Ministry of Health, where it is recommended to buy eggs that are clean, not cracked and only wash before cooking.

5. CONCLUSIONS

In conclusion, this study found that the food safety knowledge and practices level of consumers is satisfactory. However, consumers should get adequate education on the importance of food safety especially food storage, proper cooking temperature and ways to maintain good personal hygiene. Authorities should also tailor the message of food safety to give awareness to consumers especially about bacterial pathogens in order to prevent the occurrence of food poisoning at home. These findings could provide basic data for the authorities to improve existing health promotion in order to be better.

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