

The Impact of Community Dental and Oral Health Services During the Covid-19 Pandemic in Indonesia

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ABSTRACT

Based on WHO data, the number of doctors who died from COVID-19 was 545 people, while there were 46 dentists. As a result, dental practice has become a problem during the COVID-19 pandemic. Several solutions were produced to solve this problem, namely switching to non-aerosol procedures. Purpose: to conduct a literature review that examines the impact of community dental and oral health services during the COVID-19 pandemic. Method: this literature study uses the narrative review method by analyzing various journals from the PubMed, EBSCO and Google Scholar online databases related to community dental and oral health services during the COVID-19 pandemic. Conclusion: During the COVID-19 pandemic, treatment at the dentist's clinic was carried out with very strict health protocols to prevent the spread of the virus

Dampak Pelayanan Kesehatan Gigi dan Mulut Masyarakat pada Masa Pandemi Covid -19 di Indonesia

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ABSTRAK

Berdasarkan data WHO, jumlah dokter yang meninggal dunia akibat COVID-19 sebanyak 545 orang, sedangkan dokter gigi sebanyak 46 orang. Akibatnya, praktik perawatan gigi turut menjadi masalah selama pandemi COVID-19. Beberapa solusi yang dihasilkan untuk menyelesaikan masalah tersebut yaitu beralih ke prosedur nonaerosol. Tujuan: melakukan tinjauan studi pustaka yang menelaah dampak pelayanan kesehatan gigi dan mulut masyarakat pada masa pandemi COVID-19. Metode: studi pustaka ini menggunakan metode narrative review dengan menganalisis berbagai jurnal dari database online PubMed, EBSCO dan Google Scholar yang berkaitan dengan pelayanan kesehatan gigi dan mulut masyarakat pada masa pandemi COVID-19. Kesimpulan: Pada masa pandemi COVID-19, perawatan di klinik dokter gigi dengan protokol kesehatan yang sangat ketat untuk menghindari penyebaran virus

PENDAHULUAN

Penyakit infeksi *Coronavirus* (COVID-19) merupakan virus jenis baru pada manusia (*hCoV*). *Coronavirus* masuk dalam keluarga *Coronaviridae*, dari ordo *Nidovirales*, terdiri dari RNA besar, tunggal, beruntai plus dalam satu set DNA. Saat ini, ada empat genus coronavirus: *αCoV*, *βCoV*, *γCoV*, dan *δCoV*. Sebagian besar virus Corona menyebabkan penyakit menular pada manusia dan vertebrata. *αCoV* dan *βCoV* terutama menginfeksi saluran pernapasan, gastrointestinal, dan sistem saraf pusat manusia dan mamalia, sedangkan *γCoV* dan *δCoV* terutama menginfeksi burung. Virus ini memiliki morfologi dan struktur yang mirip dengan akut sindrom pernapasan akut parah (SARS) dan virus sindrom pernafasan timur tengah (MERS).

COVID-19 ditemukan pertama kali di China pada tahun 2019, dan menjadi pandemi di seluruh dunia dalam waktu yang relatif singkat. Awal mulanya, terjadi wabah Pneumonia di Kota Wuhan, China pada akhir Desember 2019. Infeksi Pneumonia kemudian menyebar dengan cepat dari Wuhan ke sebagian besar provinsi lain dan 24 negara lainnya. Akibat cepatnya penyebaran wabah Pneumonia tersebut, *World Health Organization* (WHO) mendeklarasikan darurat kesehatan masyarakat dan menjadi perhatian internasional pada 30 Januari 2020. Setelahnya, agen infeksi Pneumonia yang terjadi di Wuhan diidentifikasi sebagai *Novel Coronavirus* (2019-nCoV) dan kemudian pada 11 Februari 2020, WHO menamakan virus baru Pneumonia sebagai penyakit *Virus Corona* (COVID-19), sementara Komite Internasional untuk Taksonomi Virus (ICTV) menyarankan nama SARS-CoV-2 karena filogenetik dan analisis taksonomi virus ini mirip dengan SARS. Status darurat kesehatan COVID-19 selanjutnya dinyatakan oleh WHO berubah menjadi pandemi pada 11 Maret 2020.

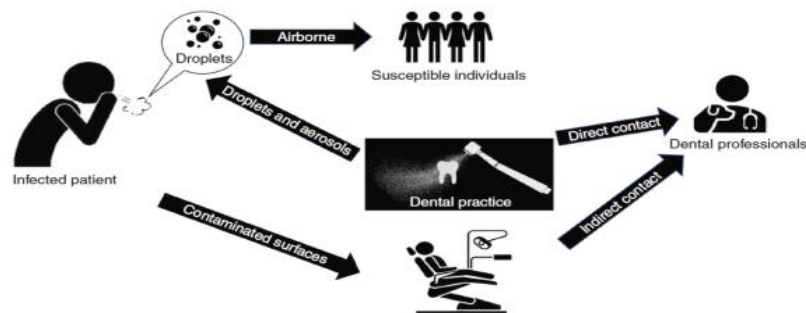
Berdasarkan data dari WHO, secara global hingga 30 Agustus 2021, terdapat 216,229,741 kasus terkonfirmasi positif COVID-19, dengan 4,496,681 kematian. Di Indonesia, dua kasus pertama COVID-19 dilaporkan pada 2 Maret 2020 dari Depok, Jawa Barat. Data yang tercatat hingga 30 Agustus 2021 jumlah kasus positif di Indonesia sebesar 4.079.267 dengan angka kematian mencapai 132.000 jiwa. Ikatan Dokter Indonesia merilis data per tanggal 21 Juli 2021, jumlah dokter yang meninggal dunia akibat COVID-19 sebanyak 545 orang, sedangkan dokter gigi sebanyak 46 orang.

Menurut Regina Tesalonika Langka (2021) pelayanan kesehatan merupakan hak setiap orang yang dijamin oleh undang – undang 1945 untuk melakukan upaya peningkatan derajat kesehatan baik perseorangan, maupun kelompok atau masyarakat secara keseluruhan, sehingga Kementerian Kesehatan RI membuat suatu kebijakan mengenai pelayanan kesehatan selama pandemi COVID-19. Mudahnya penyebaran COVID-19 terutama melalui sistem pernapasan, menyebabkan potensi penularan virus melalui prosedur perawatan gigi menarik banyak perhatian, sehingga pada 16 Maret 2020, *American Dental Association* (ADA), merekomendasikan agar praktik kedokteran gigi menunda praktik perawatan gigi hingga 6 April 2020, dan hanya menyediakan pelayanan gigi darurat. Akibat dari rekomendasi ADA, akses ke perawatan gigi menurun secara drastis dan sangat terbatas, terutama untuk populasi yang berisiko tinggi

untuk COVID-19 disarankan untuk menghindari perawatan gigi yang tidak darurat. Padahal, berdasarkan penelitian menunjukkan hubungan yang kuat antara kondisi kesehatan mulut seperti erosi, karies, dan penyakit periodontal dengan kondisi mental seperti stres, kecemasan, depresi, dan kesepian yang umum timbul di masa pandemi COVID-19. Akibatnya, praktik perawatan gigi turut menjadi masalah selama pandemi COVID-19. Beberapa solusi yang dihasilkan untuk menyelesaikan masalah tersebut yaitu beralih ke prosedur *nonaerosol* dan fokus pada prosedur pencegahan seperti penggunaan APD level 3, ruang negatif, disinfeksi ruangan klinik, dan manajemen limbah medis dengan baik serta pemanfaatan *teledentistry*.

TINJAUAN PUSTAKA

COVID-19 dapat ditularkan langsung melalui droplets atau kontak dengan benda yang terkontaminasi (*formites*). Masa inkubasi untuk pasien yang terkonfirmasi COVID-19 adalah selama 1-14 hari dengan menunjukkan gejala. Setelah 10 hari setelah gejala awal muncul, pasien sudah tidak menularkan virus 2019-nCoV. Melalui metode kultur virus, Wax dkk (2020) melaporkan bahwa virus dapat bertahan pada saliva pasien yang terinfeksi. Melakukan perawatan gigi dapat menyebabkan risiko infeksi virus 2019-nCoV karena melibatkan komunikasi tatap muka dengan pasien, dan sering terpapar saliva, darah, dan cairan tubuh lainnya, khususnya pada prosedur perawatan gigi yang invasif. Virus 2019-nCoV juga dapat menyebar melalui kontak tidak langsung dengan memegang instrumen dan benda-benda disekitar klinik gigi yang terkontaminasi.



Gambar 1. Rute Penyebaran COVID-19 di Klinik Gigi

Penyebaran COVID-19 melalui udara sudah banyak dilaporkan di berbagai jurnal. Pada praktik kedokteran gigi banyak tindakan yang menghasilkan aerosol dan droplets yang terkontaminasi oleh virus sehingga aerosol dan droplets menjadi masalah dalam praktik kedokteran gigi. Alat kedokteran gigi seperti *handpiece* berkecepatan tinggi juga dapat menyebarkan droplets ketika sedang berfungsi di rongga mulut pasien. Partikel *droplets* dan

aerosol yang kecil dapat berada di udara dalam waktu yang cukup lama, sehingga virus *2019-nCoV* berpotensi menyebar di klinik gigi.

Penyebaran virus dengan kontak langsung dapat melalui paparan saliva pasien, droplets dan aerosol dari mukosa konjungtiva, hidung, dan mulut yang mengandung mikroorganisme dari pasien yang terinfeksi saat berkomunikasi jarak dekat, batuk, atau berbicara tanpa masker pada saat perawatan gigi. Hal ini menyebabkan kemungkinan terjadinya penyebaran virus melalui kontak langsung dari pasien ke dokter gigi.

Virus *2019-nCoV* dapat bertahan di permukaan seperti logam, kaca, atau plastik hingga beberapa hari. Oleh karena itu, permukaan yang terkontaminasi merupakan salah satu penyebab yang dapat menularkan virus *2019-nCoV*. Pada praktik dokter gigi, droplets dan aerosol dari pasien yang terinfeksi dapat menyebar di klinik gigi. Virus *2019-nCoV* dapat bertahan 2 jam hingga 9 hari pada suhu ruangan dan lebih lama pada suhu lembab. Dengan demikian menjaga lingkungan yang bersih dan kering di klinik gigi dapat mengurangi penyebaran *2019-nCoV*.

Sudah diketahui bahwa *COVID-19* dapat menular dengan cepat sehingga dokter gigi harus mengerti cara mengidentifikasi pasien yang terinfeksi *COVID-19* serta pencegahan yang harus dilakukan untuk meminimalisir penyebaran virus *2019-nCoV*. Berikut adalah beberapa rekomendasi kontrol infeksi yang harus diikuti oleh dokter gigi.

Sebelum melakukan perawatan gigi, pasien harus diidentifikasi sesuai dengan rekomendasi dari kontrol infeksi yang sudah ditentukan:

1. Mengukur suhu badan pasien dengan menggunakan contactless thermometer
2. Pasien mengisi kuesioner yang berisi beberapa pertanyaan seperti: Apakah anda memiliki riwayat demam dalam 14 hari terakhir? Apakah anda memiliki gangguan pernapasan seperti batuk atau kesulitan bernapas dalam 14 hari terakhir? Apakah anda pernah pergi/mengunjungi daerah yang berisiko tinggi *COVID-19* dalam 14 hari terakhir? Apakah anda pernah berkontak dengan pasien yang terkonfirmasi *COVID-19* dalam 14 hari terakhir? Apakah anda melakukan kontak dengan orang-orang yang berasal dari zona merah atau orang-orang dari lingkungan sekitar yang memiliki riwayat demam/masalah pernapasan pada 14 hari terakhir? Apakah baru-baru ini anda pernah mengikuti pertemuan atau melakukan kontak dekat dengan banyak orang yang tidak anda kenal?

Jika pasien menjawab "Ya" pada salah satu pertanyaan dan suhu tubuhnya dibawah 37,3 Celsius, dokter gigi dapat menunda perawatan hingga 14 hari. Pasien diinstruksikan untuk melakukan karantina mandiri di rumah. Jika pasien menjawab "Ya" pada salah satu pertanyaan dan suhu tubuhnya lebih dari 37,3 Celsius, pasien harus segera dikarantina dan dokter gigi harus melapor ke rumah sakit setempat. Jika pasien menjawab "Tidak" untuk semua pertanyaan dan suhu tubuhnya dibawah 37,3 Celsius dokter gigi dapat merawat pasien dengan mengikuti protokol kesehatan yang berlaku. Jika pasien menjawab "Tidak" tetapi suhu tubuhnya lebih dari 37,3 Celsius pasien harus diinstruksikan untuk ke klinik atau rumah sakit untuk memeriksakan kondisinya.

Transmisi COVID-19 dapat melalui fecal-oral sehingga sangat penting untuk selalu mencuci tangan. Sebagai dokter gigi, kebersihan tangan adalah hal yang penting. Cuci tangan dapat dilakukan sebelum pemeriksaan pasien, sebelum tindakan perawatan gigi, setelah menyentuh pasien, setelah menyentuh lingkungan di sekitar pasien, dan peralatan yang tidak di disinfeksi, setelah menyentuh mukosa mulut, kulit, luka, dan darah. Selain itu, penting untuk menghindari menyentuh mata, mulut, dan hidung saat melakukan tindakan perawatan gigi.

Jalur utama penyebaran COVID-19 di klinik gigi yaitu melalui droplets, sehingga penggunaan alat pelindung diri adalah sebuah keharusan. Alat pelindung diri level 3 yang terdiri dari headcap sekali pakai, masker bedah sekali pakai, kaca mata pelindung, *face shield*, baju kerja (jas putih) dengan tambahan gaun sekali pakai atau gaun bedah, handscoon sekali pakai, dan sepatu khusus direkomendasikan untuk situasi seperti ini.

Menurut *Guideline for the Diagnosis and Treatment of Novel Coronavirus Pneumonia*, obat kumur *Chlorhexidine* tidak efektif dalam membunuh Virus 2019-nCoV. Karena Virus 2019-nCoV rentan terhadap oksidasi, obat kumur yang mengandung agen oksidator seperti 1% *hidrogen peroksida* atau 0,2% *Povidone iodine* sangat direkomendasikan untuk mengurangi mikroba dalam mulut yang berpotensi membawa Virus 2019-nCoV.

Klinik gigi harus dibersihkan dan didisinfeksi sesuai dengan protokol yang telah ditetapkan pada *Protocol for the Management of Surface Cleaning and Disinfection of Medical Environment*. Area umum juga harus sering dibersihkan dan didisinfeksi, termasuk gagang pintu, kursi, dan meja.

Persatuan Dokter Gigi Indonesia (PDGI) telah mengatur beberapa prosedur yang dapat dilakukan untuk perawatan gigi dan mulut di masa pandemi saat ini, salah satunya yaitu menunda perawatan dan melakukan konsultasi mengenai kesehatan gigi dan mulut melalui *teledentistry*. Namun, tidak sedikit pasien yang membutuhkan perawatan segera terhadap kondisi gigi dan mulutnya. Pada kasus yang membutuhkan perawatan segera, hal ini dapat dilakukan di klinik gigi.

Pada saat dilakukan perawatan gigi dan mulut di klinik, seorang praktisi wajib menaati prosedur penanganan pasien yang telah berlaku untuk mengurangi risiko terjadinya infeksi silang paska dilakukannya perawatan. Berikut beberapa prosedur yang dapat dilakukan oleh praktisi untuk menangani pasien di masa pandemi, yaitu mengurangi paparan aerosol dengan berusaha menghindari penggunaan *handpiece* bila memungkinkan. Apabila tidak memungkinkan dapat menggunakan *box aerosol*.

Box penampung *aerosol* terbuat dari *box* akrilik atau PVC tembus pandang dan sambungan pipa sebagai upaya pencegahan penyebaran aerosol saat dokter sedang melakukan tindakan perawatan gigi. Jenis *box* seperti ini kemungkinan dapat menghalangi pandangan dan membatasi gerakan tangan operator saat bekerja, tetapi setidaknya dapat mengurangi penyebaran *droplets* dan *aerosol* saat perawatan gigi di ruangan klinik dokter gigi.

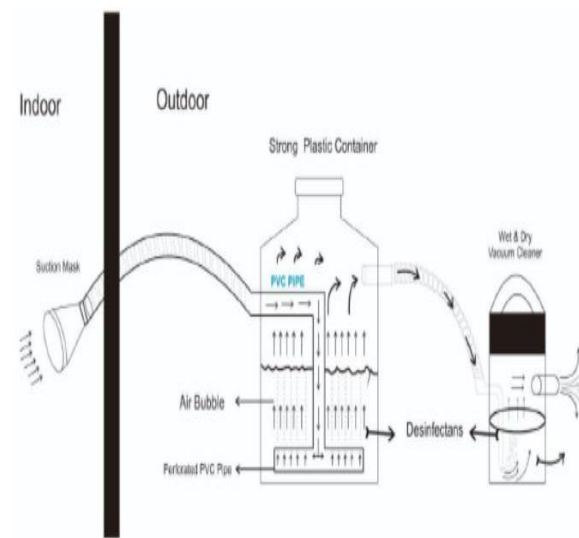
Selain menggunakan *box aerosol*, dapat juga dikombinasikan dengan *Aerosol Suction* dan *High Vacuum Evacuator*. Menurut penelitian yang dilakukan

oleh Liu MH dkk, sistem vakum sentral. dengan 28,5 liter per menit efektif dalam mengurangi aerosol sebesar 36%. Penggunaan vakum dilaporkan lebih efektif dalam mengurangi paparan aerosol pada dokter gigi daripada penggunaan filter respirator saja. Penelitian lain juga mengatakan penggunaan *Aerosol Suction* dan *High Vacuum Evacuator* dapat mengurangi paparan partikel sangat kecil pada pasien dan dokter gigi lebih dari 80% dibandingkan dengan *suction* gigi konvensional. Beberapa dokter gigi ada yang memodifikasi alat penyedot debu menjadi penyedot *aerosol*.

Selain itu juga menggunakan *rubber dam* dan *suction high volume* pada saat dilakukan perawatan saluran akar dan restorasi untuk mengurangi percikan saliva, mengganti penggunaan bur dengan *NaOCl* untuk menghilangkan jaringan karies secara kemo-mekanis, menggunakan handpiece dengan anti-retraksi untuk mengurangi aliran balik dari air yang kemungkinan sudah terkontaminasi oleh bakteri dalam rongga mulut ke dalam tabung *handpiece* atau *dental unit*, bila perlu dilakukan pemeriksaan radiografi, hindari melakukan foto secara intra oral, penggunaan metode *four handed dentistry*. *Four handed dentistry* dapat didefinisikan sebagai kerja tim yang diterapkan selama perawatan gigi dilakukan, dimana dokter gigi akan dibantu oleh asisten dokter gigi selama perawatan berlangsung. *Four handed dentistry* memiliki fungsi dalam meningkatkan efisiensi perawatan kedokteran gigi dan perlu dilakukan koordinasi yang baik antara dokter gigi, dan asisten dokter gigi agar perawatan dapat berlangsung dengan baik. Prosedur ini dapat dijadikan opsi dalam melakukan perawatan, tetapi dalam beberapa situasi prosedur *four handed dentistry* perlu dilakukan seperti pada perawatan *endodontik*. Prosedur berikutnya adalah melakukan perawatan secara *one visit* lakukan cuci tangan sebelum dan sesudah kontak dengan pasien, dan melakukan perawatan scaling dengan scaler manual, dan jika diperlukan penjahitan gunakan benang *absorbable*.

Selain melakukan perawatan sesuai dengan prosedur untuk menghindari terjadinya infeksi silang, terdapat beberapa hal yang harus diperhatikan terkait dengan pasca perawatan di klinik gigi untuk meminimalisir terjadinya infeksi silang antara pasien dengan praktisi maupun dengan pasien selanjutnya, diantaranya yaitu: Melakukan disinfeksi klinik secara rutin, termasuk meja, kursi, gagang pintu, dental unit, dan peralatan yang dapat dipakai kembali (*reuseable*). Membersihkan alat pelindung diri dengan menggunakan sabun dan air mengalir.

Pengolahan limbah klinik sesuai dengan prosedur sebelum diangkut ke tempat pembuangan akhir, limbah medis disimpan terlebih dahulu di ruang penyimpanan khusus yang jauh dari area pelayanan medis. Limbah medis yang dihasilkan dari perawatan pasien yang diduga atau telah dikonfirmasi terinfeksi COVID-19 dianggap sebagai limbah medis infeksius. Pada kondisi ini lebih baik menggunakan dua lapis kantong limbah medis berwarna kuning serta harus diikat dengan ikatan "*gooseneck*". Kantong limbah harus diberi label dan dibuang sesuai dengan prosedur pengelolaan limbah medis.



Gambar 2. *Aerosol Suction and High Vacuum Evacuator*



Gambar 3. *Penggunaan Aerosol Suction and High Vacuum Evacuator*



Gambar 4. *Box Aerosol*

METODOLOGI

Studi pustaka ini menggunakan metode *Narrative Review*. Menurut Ferrari (2015) *Narrative Review* bertujuan mengidentifikasi dan merangkum artikel yang telah diterbitkan sebelumnya, menghindari duplikasi penelitian, dan mencari bidang studi baru yang belum diteliti. Referensi dikumpulkan berupa jurnal melalui database dan website online *BMC Oral Health*, *PubMed*, dan *Google Scholar*. Referensi juga diseleksi melalui analisis referensi yang berupa penelitian, artikel, *case report* dan *systematic review*.

HASIL DAN PEMBAHASAN

Salah satu pelayanan kesehatan gigi dan mulut yang saat ini mulai populer di Indonesia adalah *teledentistry*. *Teledentistry* merupakan fasilitas perawatan gigi, edukasi atau pengobatan jarak jauh melalui penggunaan teknologi informasi tanpa tatap muka secara langsung dengan pasien. *Teledentistry* dimulai oleh militer AS pada tahun 1994 untuk melayani pasukan AS di seluruh dunia. Selama bertahun-tahun *teledentistry* telah terbukti bermanfaat untuk pemeriksaan gigi jarak jauh, membuat diagnosis, memberikan konsultasi, dan membuat rencana perawatan. Dalam situasi pandemi *COVID-19* yang sedang berlangsung saat ini, *teledentistry* merupakan cara yang efektif untuk menghindari kontak dengan orang lain. Kata 'tele' berarti 'jauh', oleh karena itu *teledentistry* memenuhi kebutuhan untuk menjaga jarak sosial seperti yang telah dianjurkan oleh otoritas kesehatan di seluruh dunia dalam menahan penyebaran Virus *SARS-COV-2*.

Teledentistry dapat dimasukkan ke dalam praktik gigi karena memiliki berbagai aplikasi seperti triase jarak jauh dari pasien yang diduga *COVID-19* untuk perawatan gigi. Tata cara dalam melakukan *teledentistry* yang pertama yaitu dengan melakukan tele-konsultasi antara pasien dan dokter gigi secara *online*. Setelah pasien menyampaikan keluhannya kepada dokter gigi maka dapat dilanjutkan dengan melakukan tele-diagnosis dengan memanfaatkan teknologi untuk bertukar gambar dan data untuk menentukan diagnosis. Setelah penentuan diagnosis dan diperlukan penanganan, maka pasien dapat berkunjung secara langsung ke dokter gigi dengan melaksanakan protokol kesehatan secara ketat karena mudahnya penyebaran *COVID-19* melalui droplet dan udara.

Protokol kesehatan dalam pelayanan kedokteran gigi dalam masa pandemi *COVID-19* yaitu dengan penggunaan alat pelindung diri level 3 yang bersifat sebagai proteksi tingkat tinggi untuk prosedur yang berkontak langsung dengan darah, cairan dalam jumlah sedang hingga tinggi, berhubungan dengan aerosol atau droplet. APD level 3 diperuntukkan bagi tenaga kesehatan yang berkontak langsung dengan pasien dan berisiko tinggi tertular. Alat pelindung diri yang dipergunakan terdiri atas baju kerja/ *scrub*, *hand schoon*, masker N95 yang dilapisi masker bedah, kacamata *goggle* atau *face shield*, *coverall* dan sepatu boot. Pekerjaan dokter gigi merupakan suatu hal yang berisiko tinggi, seperti yang diketahui *COVID-19* menular melalui droplet yang tersebar di udara hasil dari pernafasan ataupun *saliva* pasien sehingga perlunya APD level 3 untuk menghindari terpapar dari *Coronavirus*. Efektivitas dari APD level 3 juga terbukti paling baik dalam menurunkan risiko penularan *Coronavirus*.

APD level 2 diperuntukkan bagi tenaga kesehatan yang bekerja di ruang perawatan pasien non Covid, tenaga laboratorium, petugas *laundry* dan sterilisasi. Alat pelindung diri yang dipergunakan terdiri atas penutup kepala, masker bedah, *face shield* atau *google*, sarung tangan, baju kerja, sepatu. Maka jika dikenakan oleh tenaga medis yang paling berisiko terpapar dengan *Coronavirus*, APD level 2 dinilai kurang efektif dalam menurunkan risiko penularan virus.

Selain penggunaan APD yang sesuai, penggunaan *Box Aerosol* dikombinasi dengan *Aerosol Suction* dan *High Vacuum Evacuator* merupakan salah satu cara yang efektif dalam mengurangi penyebaran droplets dan aerosol saat perawatan gigi di ruangan klinik dokter gigi. Dalam suatu penelitian juga mengatakan penggunaan *Aerosol Suction* dan *High Vacuum Evacuator* dapat mengurangi paparan aerosol dan droplets hingga lebih dari 80% dibandingkan dengan *suction* gigi konvensional.

Penggunaan *handpiece* dengan anti-retraksi merupakan cara lain untuk mengurangi risiko terpapar dari *Coronavirus*. *Handpiece* dengan anti-retraksi dapat mengurangi aliran balik dari air yang kemungkinan sudah terkontaminasi oleh bakteri dalam rongga mulut ke dalam tabung *handpiece* atau dental unit. Pencegahan cara ini sudah cukup banyak digunakan pada klinik dokter gigi di Indonesia.

Selain melakukan perlindungan saat melakukan perawatan, ruangan juga perlu diatur untuk mengurangi kontaminasi saat melakukan perawatan gigi dan mulut di masa pandemi COVID-19. Ruang tekanan negatif adalah ruangan yang menggunakan udara tekanan rendah. Tujuan pembuatan ruangan tekanan negatif di rumah sakit atau klinik gigi adalah untuk membantu mencegah kontaminasi udara di luar ruang perawatan. Oleh karena itu, di masa pandemi COVID-19 ini diharapkan setiap rumah sakit dan klinik gigi bisa membuat modifikasi ruangan agar mencegah penyebaran *Coronavirus* antar operator dengan pasien dan lingkungan luar. Walaupun dapat mencegah penularan melalui aerosol secara efektif, namun dibutuhkan waktu dan biaya yang besar karena harus dilakukan perombakan untuk membuat ruangan bertekanan negatif, sehingga beberapa tempat pelayanan kesehatan masih belum bisa menyediakan ruangan bertekanan negatif.

Setelah dilakukan perawatan menggunakan protokol yang sangat ketat, selanjutnya dapat melakukan telemonitoring untuk memantau hasil perawatan. Penggunaan telemonitoring dapat menggantikan kunjungan fisik dengan kunjungan virtual untuk pemantauan rutin hasil perawatan (kontrol). Kelebihan dari telemonitoring dapat mengurangi biaya dan waktu tunggu serta pada masa pandemi penting untuk meminimalkan tatap muka secara langsung. Selain kelebihan, terdapat pula kekurangan dari telemonitoring yaitu hasil yang mungkin bias serta lapang pandang yang lebih sempit dibanding langsung di klinik gigi.

Teledentistry memang memiliki banyak kelebihan yaitu memudahkannya konsultasi dengan dokter gigi secara virtual tanpa harus bertatap muka secara langsung. Kelebihan lainnya informasi yang cepat, rendah biaya, efisien, konsultasi yang tercatat, dapat berkomunikasi dengan beberapa peserta sekaligus serta dapat menjadi pendapat kedua (*second opinion*) sebelum melakukan

perawatan, sehingga membuat perawatan gigi lebih efisien. Akan tetapi *teledentistry* juga memiliki kekurangan yaitu pasien ataupun dokter gigi terkadang terkendala dengan jaringan internet yang buruk, maka dari itu harus memiliki koneksi internet yang baik. Kekurangan lainnya yaitu kurangnya pelatihan dan keahlian dokter gigi untuk menentukan diagnosis secara virtual, menyebabkan ketakutan akan terjadinya kesalahan diagnosis. Selanjutnya juga terbatasnya ruang dokter gigi dalam melakukan pemeriksaan klinis, seperti ketidakmampuan untuk melakukan palpasi dan auskultasi saat pemeriksaan lesi

KESIMPULAN DAN REKOMENDASI

Kesimpulan

COVID-19 disebabkan oleh Virus SARS-CoV-2 yang menyebar di udara melalui batuk, bersin, dan droplets serta bisa melalui transmisi kontak seperti kontak dengan cairan atau lendir dari mulut, hidung, dan mata. Prosedur perawatan gigi yang invasif dapat menghasilkan *aerosol* dan *droplets*. Untuk menghindari penyebaran Virus SARS-CoV-2 dapat dilakukan dengan *teledentistry*. *Teledentistry* merupakan sarana untuk konsultasi dengan dokter gigi secara virtual tanpa harus bertatap muka secara langsung atau yang disebut dengan telemonitoring. Dokter gigi akan melakukan telediagnosis, setelah itu pasien akan melakukan perawatan di klinik dokter gigi dengan protokol kesehatan yang sangat ketat untuk menghindari penyebaran virus. Tenaga kesehatan yang berkontak langsung dengan pasien wajib menggunakan APD level 3 yang efektif untuk menghindari paparan *Coronavirus*. Selain itu, juga dapat menggunakan *Box Aerosol* dikombinasi dengan *Aerosol Suction* dan *High Vacuum Evacuator*, penggunaan handpiece dengan anti-retraksi, serta pembuatan ruang isolasi negatif.

Rekomendasi

Berdasarkan kesimpulan diatas, maka studi pustaka ini sangat di rekomendasikan kepada:

a. Praktisi Kedokteran Gigi (Dokter Gigi dan Perawat Gigi)

Melalui studi pustaka ini, Praktisi kedokteran gigi dapat menerapkan usaha – usaha pencegahan COVID-19 dalam pelayanan kesehatan gigi dan mulut masyarakat yang saat ini masih menjadi pandemi di Indonesia, sehingga dapat mencegah penularan virus COVID-19 dari praktisi kedokteran gigi ke pasien atau dari pasien ke praktisi kedokteran gigi.

b. Dinas Kesehatan Daerah

Melalui studi pustaka ini, Dinas Kesehatan Daerah dapat membuat suatu kebijakan mengenai standart pencegahan penularan virus COVID-19 pada pelayanan kesehatan gigi dan mulut masyarakat, sehingga para praktisi dapat melayani sesuai protokol yang berlaku. Selain itu, Dinas Kesehatan Daerah juga memberikan edukasi kepada para praktisi kedokteran mengenai pencegahan virus COVID-19 pada pelayanan kesehatan gigi dan mulut.

c. Masyarakat

Melalui studi pustaka ini, masyarakat dapat menambah pengetahuan mengenai pencegahan pelayanan kesehatan gigi dan mulut dan masyarakat tidak takut untuk kembali merawat gigi dan mulutnya di pusat pelayanan

kesehatan gigi dan mulut yang sesuai dengan protokol pencegahan penyebaran virus *COVID-19*.

PENELITIAN LANJUTAN

Studi pustaka ini dibuat berdasarkan penelitian dari referensi yang sesuai dan akurat. Selain itu juga berdasarkan kebutuhan masyarakat mengenai edukasi pelayanan kesehatan gigi dan mulut yang sesuai dengan standart protokol yang tepat. Tetapi studi pustaka ini perlu dibutuhkan penelitian lebih lanjut, karena terdapat penemuan terbaru mengenai usaha-usaha pencegahan pelayanan kesehatan gigi dan mulut yang disebabkan karena semakin berkembangnya kemajuan teknologi dan pengetahuan terutama dalam usaha pelayanan kesehatan gigi dan mulut masyarakat di Indonesia.

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Kontribusi Durasi Merokok sebagai Penyebab Terjadinya Karies Gigi pada Penghuni Panti Sosial

Contribution of Smoking Duration as the Cause of Dental Caries among Residents of Social Care Institution

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Abstract: Smoking duration can have a number of detrimental effects on oral health including tooth loss, periodontal disease, oral soft tissue changes, excessive tooth wear, halitosis, implant failure, oropharyngeal cancer, and dental caries. This study aimed to analyze the relationship between smoking duration and the occurrence of dental caries among residents of social care institutions. This was an observational and analytical study with a cross-sectional design. Samples were 100 residents of Panti Sosial Bina Insan Bangun Daya 1, Kedoya Jakarta Barat, taken by purposive sampling technique. Data were collected by examining dental caries experience with the DMF-T index to obtain the status of dental caries and filling out a questionnaire to obtain the frequency of smoking duration. The Spearman correlation test showed a p-value of 0.436 with a coefficient of $r = 0.079$ for the relationship between smoking duration and the occurrence of dental caries. In conclusion, there is no relationship between duration of smoking and the occurrence of dental caries in residents of social care institutions. However, the prevalence of caries experience for those residents reaches 96% with an average DMF-T index of 4.8 which is categorized as high according to WHO.

Keywords: dental caries; duration of smoking; residents of social care institutions; index DMF-T

Abstrak: Durasi merokok dapat memiliki sejumlah efek merugikan pada kesehatan mulut, antara lain kehilangan gigi, penyakit periodontal, perubahan jaringan lunak oral, keausan gigi yang berlebihan, halitosis, kegagalan implan, kanker orofaringeal, dan karies gigi. Penelitian ini bertujuan untuk menganalisis hubungan antara durasi merokok dengan terjadinya karies gigi di panti sosial. Penelitian ini menggunakan metode observasional analitik dengan desain potong lintang. Sampel penelitian berjumlah 100 orang penghuni panti sosial Bina Insan Bangun Daya 1, Kedoya Jakarta Barat, yang diambil dengan teknik *purposive sampling*. Pengambilan data melalui pemeriksaan pengalaman karies gigi dengan indeks DMF-T untuk melihat status karies gigi dan pengisian kuesioner untuk melihat frekuensi durasi merokok. Hasil uji korelasi Spearman terhadap hubungan antara durasi merokok dengan terjadinya karies gigi memperoleh nilai $p=0,436$ dengan koefisien $r = 0,079$. Simpulan penelitian ini ialah tidak terdapat hubungan antara durasi merokok dengan terjadinya karies gigi pada penghuni panti sosial. Prevalensi pengalaman karies penghuni panti sosial mencapai 96% dengan rerata indeks DMF-T sebesar 4,8 yang tergolong tinggi menurut WHO.

Kata kunci: karies gigi; durasi merokok; penghuni panti sosial; indeks DMF-T

PENDAHULUAN

Kebiasaan merokok sudah meluas di hampir semua masyarakat dan cenderung mengalami peningkatan terutama di kalangan anak-anak dan khususnya remaja.¹ Kebiasaan merokok dapat menyebabkan perubahan aliran darah rongga mulut sehingga mengurangi pengeluaran saliva yang disebabkan karena terlalu seringnya terpapar asap rokok di dalam rongga mulut, akibatnya rongga mulut menjadi kering dan lebih *anaerob* (suasana bebas zat asam) sehingga memberikan dampak risiko gangguan kesehatan gigi lebih besar.²

Secara global, efek buruk dan bahaya dari merokok dapat mempengaruhi kesehatan masyarakat. Sekitar 5 juta orang berada di bawah pengaruh buruk langsung dari merokok yang berkelanjutan. Selain itu, diasumsikan bahwa jumlah ini akan meningkat menjadi 10 juta pada tahun 2030, dengan 70% kematian terjadi di negara-negara berpenghasilan rendah dan menengah.³ Merokok juga memiliki sejumlah efek merugikan pada kesehatan mulut. Salah satu efek dari merokok ialah karies gigi yang dapat berkembang dan menyebabkan kerusakan gigi.⁴

Karies adalah penyakit jaringan keras gigi yang terdiri dari enamel, dentin, sementum yang disebabkan oleh aktivitas mikroorganisme yang ditandai oleh demineralisasi jaringan keras gigi dan diikuti oleh kerusakan bahan organik dari enamel, dentin dan sementum.⁵ Proses karies gigi akan berlanjut, berhenti, atau berbalik arahnya tergantung pada keseimbangan antara demineralisasi dan remineralisasi.⁶ Karies gigi dapat dialami oleh setiap orang dan dapat timbul pada satu permukaan gigi atau lebih, serta dapat meluas ke bagian yang lebih dalam misalnya dari enamel ke dentin maupun ke pulpa.⁷ Berdasarkan data pada Riskesdas 2018 proporsi gigi yang rusak/berlubang /sakit di Indonesia ialah sebesar 45,5% sedangkan prevalensi karies gigi sebesar 88,8% dengan rerata DMF-T sebesar 7,1.⁸

Penelitian hubungan merokok dengan karies gigi yang dilakukan oleh Patil et al⁵ mengungkapkan bahwa pada perokok 1,6 kali lebih mungkin untuk terjadinya karies dibandingkan dengan yang tidak merokok.^{5,9} Chaitanya et al⁴ melakukan penelitian di *the Panineeya Institute of Dental Sciences*, Hyderabad, dan melaporkan bahwa prevalensi karies gigi pada perokok berusia di bawah 25 tahun sebesar 72,2%, pada usia 26-36 tahun sebesar 66,7%, sedangkan pada usia 36-45 tahun ialah 60,5 %. Menurut Sumerti,¹⁰ prevalensi masyarakat yang merokok dari tahun ke tahun semakin meningkat dan rokok dapat menyebabkan kerusakan pada gigi dan jaringan lunak rongga mulut. Nilai rerata DMF-T (*Decay, Missing, Filled-Teeth*) indeks lebih tinggi pada perokok; hal ini disebabkan karena asap rokok yang terkumpul di dalam mulut dengan waktu yang lama yang menyebabkan penurunan saliva sehingga rongga mulut cenderung kering maka gigi menjadi rentan terhadap munculnya karies gigi.¹⁰ Ludwick dan Massler melaporkan bahwa mereka yang merokok lebih dari 15 batang sehari memiliki jumlah karies gigi, gigi yang hilang, dan juga tambalan gigi secara bermakna lebih tinggi. Perokok memiliki skor DMFT yang lebih tinggi yang berhubungan dengan rokok yang dikonsumsi per hari.¹¹

Berdasarkan data Survei Indikator Kesehatan Nasional (SIRKESNAS) tahun 2016 didapatkan prevalensi merokok secara nasional sebesar 28,5%. Prevalensi merokok menurut jenis kelamin pada laki-laki sebesar 59% dan perempuan 1,6%. Menurut tempat tinggal, prevalensi merokok di pedesaan dan perkotaan tidak terlalu jauh berbeda yaitu di pedesaan sedikit lebih tinggi (29,1%) dibandingkan dengan perkotaan (27,9%).¹² Menurut kelompok usia, prevalensi tertinggi pada usia 40- 49 tahun sebesar 39,5%, sedangkan pada usia muda/perokok pemula (≤ 18 tahun) sebesar 8,8%.¹³ Provinsi dengan prevalensi merokok tertinggi di Indonesia ialah Jawa Barat (32,7%), sedangkan prevalensi merokok pada provinsi DKI Jakarta ialah 29,2%.¹⁴

Homeless atau gelandangan adalah orang-orang yang hidup dalam keadaan tidak sesuai dengan norma kehidupan yang layak dalam masyarakat setempat, tidak mempunyai tempat tinggal dan pekerjaan yang tetap di wilayah tertentu dan hidup mengembara di tempat umum. Persoalan dalam lingkup masyarakat yang berhubungan dengan *homeless* salah satunya ialah perilaku kebersihan dan kesehatan yang masih sangat kurang. Ventilasi dan penerangan juga masih kurang yang menyebabkan munculnya berbagai masalah kesehatan. *Homeless* terdiri dari psikotik/stres, gelandangan, pengemis, pemulung, pengamen, terlantar, anak jalanan, parkir liar,

jompo terlantar, wanita, asongan, waria, kotak amal fiktif, penyandang cacat, kusta, dll.

Dari data masuk tunawisma di panti sosial Bina Insan Bangun Daya 1 sebanyak 4416, paling banyak pada bulan Desember 2019 (545 orang) dan paling sedikit pada bulan Juni 2019 (261 orang). Persentase jumlah total terbanyak yaitu gelandangan (14,3%), dan paling sedikit yaitu kotak amal fiktif (0,35%). Penelitian ini telah mempertimbangkan beberapa faktor yang dapat berkontribusi secara langsung dan tidak langsung pada peningkatan terjadinya karies gigi pada perokok seperti faktor durasi merokok, kebiasaan merokok, serta kebersihan gigi dan mulut. Prevalensi konsumsi tembakau atau merokok serta tingginya prevalensi karies gigi di Indonesia, dan minimnya perhatian masalah kesehatan di panti sosial, membuat peneliti tertarik untuk mengetahui hubungan durasi lamanya merokok dengan terjadinya karies gigi pada penghuni panti sosial.

METODE PENELITIAN

Penelitian ini dilaksanakan di panti sosial Bina Insan Bangun Daya 1, Kedoya Jakarta Barat pada bulan Desember 2019 dengan menggunakan metode observasional analitik dan desain potong lintang. Tujuan penelitian ialah untuk mengetahui hubungan antara durasi kebiasaan merokok dengan terjadinya karies gigi pada penghuni panti sosial. Variabel terikat ialah karies gigi dan variabel bebas ialah durasi merokok yaitu kurang dari 5 tahun, 5-10 tahun, dan lebih dari 10 tahun. Teknik pengambilan sampel menggunakan *purposive sampling* sebanyak 100 orang penghuni panti sosial. Analisis data dilakukan dengan uji korelasi Spearman menggunakan SPSS 23.

HASIL PENELITIAN

Gambaran subjek penelitian ini berupa karakteristik demografi, kebiasaan merokok durasi merokok berdasarkan kejadian karies gigi, pengalaman karies gigi, dan perawatan kesehatan gigi dan mulut pada penghuni panti sosial Bina Insan Bangun Daya 1 Kedoya Jakarta Barat. Tabel 1 memperlihatkan bahwa berdasarkan jenis kelamin sebagian besar penghuni ialah laki-laki yaitu sebanyak 84 orang (84%), sedangkan perempuan yaitu 16 orang (16%). Berdasarkan usia, penghuni terbanyak dengan usia 31-40 tahun sebanyak 32 orang (32%) sedangkan yang paling sedikit ialah usia lebih dari 71 tahun sebanyak empat orang (4%). Rerata usia penghuni panti sosial ialah 39,48 tahun, dengan usia terendah ialah 15 tahun dan yang tertinggi ialah 78 tahun.

Tabel 2 memperlihatkan bahwa berdasarkan tingkat pengalaman karies gigi pada penghuni panti sosial yang terbanyak ialah berjenis kelamin laki-laki dengan kategori sangat tinggi (35%), sedangkan pada yang berjenis kelamin perempuan terbanyak dengan kategori rendah (8,0%). Tingkat pengalaman karies terbanyak pada penghuni panti sosial yang berusia 31-40 tahun (32%) dan pengalaman karies terbanyak ialah kriteria tinggi menurut WHO (36%). Prevalensi pengalaman karies gigi pada penghuni panti sosial ialah 94% dengan rerata nilai DMF-T 4,8 yang termasuk ke dalam kategori tinggi menurut WHO.

Tabel 1. Distribusi frekuensi penghuni panti sosial berdasarkan karakteristik demografi (n= 100)

Karakteristik demografi		n	%
Jenis kelamin	Laki-laki	84	84
	Perempuan	16	16
	Total	100	100
Usia (tahun)	<=30	29	29
	31-40	32	32
	41-50	18	18
	51-60	8	8
	61-70	9	9
	>71	4	4
	Total	100	100

Tabel 3 memperlihatkan bahwa durasi merokok paling banyak ialah selama lebih dari 10 tahun (46%). Paling banyak penghuni panti yang menghisap 1-10 rokok per hari (64%) dan jenis rokok yang dikonsumsi terbanyak ialah rokok putih (56%). Penghuni panti yang mempunyai kebiasaan merokok setiap hari ialah yang terbanyak (44%) namun penghuni yang terbanyak ialah tidak sering merokok di pagi hari (54%).

Tabel 2. Distribusi frekuensi jenis kelamin dan usia penghuni panti sosial berdasarkan kejadian karies

		Karies gigi										Total	
		Sangat rendah		Rendah		Sedang		Tinggi		Sangat tinggi			
		n	%	n	%	n	%	n	%	n	%	n	%
Jenis kelamin	Laki-laki	12	12,0	16	16,0	13	13,0	8	8,0	35	35,0	84	84
	Perempuan	1	1,0	8	8,0	3	3,0	3	3,0	1	1,0	16	16
	Total	13	13	24	24	16	16	11	11,0	37	36	100	100
Usia (tahun)	<=30	7	7,0	9	9,0	4	4,0	4	4,0	5	5,0	29	29
	31-40	5	5,0	11	11,0	6	6,0	4	4,0	6	6,0	32	32
	41-50	1	1,0	2	2,0	4	4,0	3	3,0	8	8,0	18	18
	51-60	0	0	1	1,0	2	2,0	0	0	5	5,0	8	8
	61-70	0	0	1	1,0	0	0	0	0	8	8,0	9	9
	>71	0	0	0	0	0	0	0	0	4	4,0	4	4
	Total	13	13	24	24	16	16	11	11	36	36	100	100

Tabel 3. Distribusi kebiasaan merokok penghuni panti sosial (n=100)

Kebiasaan merokok	n	%
Durasi merokok		
Kurang dari 5 tahun	28	28
5-10 tahun	26	26
Lebih dari 10 tahun	46	46
Total	100	100
Batang rokok yang dihisap/hari		
1-10 batang	64	64
11-20 batang	19	19
Lebih dari 20 batang	17	17
Total	100	100
Jenis rokok	56	56
Rokok putih	56	56
Rokok kretek	43	43
Rokok klembak	1	1
Total	100	100
Frekuensi merokok setiap hari		
Ya	44	44
Kadang-kadang	40	40
Tidak	16	16
Total	100	100
Frekuensi merokok di pagi hari		
Sering	46	46
Tidak sering	54	54
Total	100	100

Tabel 4 memperlihatkan bahwa penghuni panti yang memiliki durasi merokok lebih dari 10 tahun memiliki kejadian karies gigi paling banyak yaitu sangat tinggi (15%). Penghuni panti dengan durasi merokok kurang dari 5 tahun dan 5-10 tahun juga memiliki kejadian karies paling banyak yaitu sangat tinggi (9% dan 12%) sedangkan kejadian karies paling sedikit yaitu yang tinggi (1%).

Tabel 5 memperlihatkan bahwa pengalaman karies penghuni panti paling banyak ialah sangat tinggi yaitu 37 orang (37%) dan yang paling sedikit ialah tinggi yaitu 10 orang (10%).

Tabel 6 memperlihatkan bahwa dalam hal perawatan kesehatan gigi dan mulut oleh para penghuni panti, yang terbanyak ialah tidak tentu menyikat gigi setiap hari yaitu 46 orang (46%). Banyak penghuni panti sosial yang tidak pernah kontrol ke dokter gigi (78%), banyak di antaranya yang tidak tahu waktu tepat untuk menyikat gigi (41%), dan paling dominan yaitu membiarkan giginya sakit (41%).

Tabel 4. Distribusi frekuensi durasi merokok berdasarkan kejadian karies gigi

		Karies gigi										Total	
		Sangat rendah		Rendah		Sedang		Tinggi		Sangat tinggi			
		n	%	n	%	n	%	n	%	n	%	n	%
Durasi merokok	<5 tahun	5	5,0	8	8,0	5	5,0	1	1,0	9	9,0	28	28
	5-10 tahun	2	2,0	7	7,0	4	4,0	1	1,0	12	12,0	26	26
	>10 tahun	6	6,0	9	9,0	7	7,0	9	9,0	15	15,0	46	46
Total		13	13	24	24	16	16	10	19	36	36	100	100

Tabel 5. Distribusi frekuensi berdasarkan pengalaman karies gigi

Pengalaman karies gigi	n	%
Sangat rendah	13	13
Rendah	24	24
Sedang	16	16
Tinggi	10	10
Sangat tinggi	37	37
Total	100	100

Tabel 6. Distribusi frekuensi berdasarkan perawatan kesehatan gigi dan mulut

Perawatan kesehatan gigi dan mulut	n	%
Frekuensi menyikat gigi tiap hari		
2x sehari	26	26
1x sehari	14	14
Tidak tentu	46	46
Total	100	100
Frekuensi terakhir kunjungan ke dokter gigi		
6 bulan yang lalu	6	6
1 tahun yang lalu	16	16
Tidak pernah	78	78
Total	100	100
Frekuensi waktu yang tepat menyikat gigi		
Pagi dan malam	29	29
Pagi dan sore	30	30

Tidak tahu	41	41
Total	100	100
Frekuensi berdasarkan hal yang dilakukan saat gigi sakit		
Periksa ke dokter gigi	29	29
Minum obat penghilang nyeri	30	30
Dibiarkan	41	41
Total	100	100

Hasil uji korelasi Spearman untuk hubungan antara durasi merokok dengan terjadinya karies gigi menunjukkan nilai koefisien korelasi $r=0,079$ yang menunjukkan kedua variabel mempunyai korelasi positif yang kuat, dengan nilai $p=0,436$ ($p<0,05$). Dapat disimpulkan bahwa tidak terdapat hubungan bermakna antara durasi merokok dengan terjadinya karies gigi.

BAHASAN

Berdasarkan hasil uji korelasi Spearman, diperoleh nilai $p=0,436$ ($>0,05$) yang menunjukkan bahwa tidak terdapat hubungan bermakna antara kedua variabel yang dihubungkan. Nilai koefisien, $r=0,079$ menunjukkan bahwa kedua variabel memiliki hubungan arah korelasi positif dengan kekuatan korelasi kuat. Hipotesis yang diajukan peneliti tidak diterima.

Distribusi frekuensi penghuni panti sosial dengan jenis kelamin laki-laki lebih banyak dibandingkan dengan penghuni yang berjenis kelamin perempuan (Tabel 1). Hal ini terjadi karena di panti sosial Bina Insan Bangun Daya 1 Kedoya Jakarta Barat lebih banyak yang berjenis kelamin laki-laki, sehingga kesempatan penghuni berjenis kelamin laki-laki lebih besar menjadi subjek penelitian yaitu sebesar 84%. Hal tersebut sesuai dengan data Infodatin tahun 2018 yang menyebutkan bahwa prevalensi merokok pada laki-laki dewasa selalu lebih tinggi daripada perempuan yang pada tahun 2010 meningkat menjadi 66%.

Distribusi frekuensi merokok berdasarkan usia pada penghuni panti sosial yang berusia 31-40 tahun lebih banyak dibandingkan dengan usia lainnya (32%) (Tabel 1). Data Riskesdas 2010 menunjukkan usia 45-54 tahun yang paling banyak merokok sebesar 38,2%. Perbedaan rentang usia ini dapat terjadi karena adanya perbedaan distribusi usia subjek penelitian ini serta jumlah subjek penelitian pada Riskesdas lebih banyak dan mencakup wilayah yang luas.¹⁵

Berdasarkan durasi merokok pada penelitian ini paling banyak perokok dengan lama merokok >10 tahun (46%) (Tabel 3). Hasil ini sejalan dengan penelitian yang dilakukan oleh Djokja et al¹⁶ di Desa Mosongan Kecamatan Banggai Tengah yang menunjukkan jumlah perokok yang paling banyak ialah dengan lama merokok >10 tahun sebesar 61 orang (81,25%).

Berdasarkan hasil penelitian, distribusi frekuensi perokok berdasarkan jenis rokok yang dikonsumsi paling banyak di panti sosial Bina Insan Bangun Daya 1 Kedoya Jakarta Barat yaitu rokok putih atau rokok filter (56%) (Tabel 3). Hasil survei *Global Adult Tobacco Survey* Indonesia tahun 2011 mendapatkan bahwa jenis rokok yang paling banyak dikonsumsi oleh perokok yaitu rokok kretek (80,4%). Perbedaan tersebut dapat disebabkan karena jumlah subjek penelitian pada *Global Adult Tobacco Survey* Indonesia lebih banyak dan mencakup banyak wilayah untuk diteliti. Berdasarkan laporan Riskesdas tahun 2013 didapatkan rerata jumlah batang rokok yang dihisap per hari per orang Indonesia ialah 12,3 batang (setara satu bungkus), yang agak berbeda dengan hasil penelitian ini yaitu paling banyak subjek penelitian menghisap rokok sebanyak 1-10 batang perhari.

Beberapa penelitian menunjukkan bahwa merokok dan hubungannya dengan karies gigi masih kontroversial dan laju aliran saliva antara perokok dan bukan perokok tidak menunjukkan perbedaan bermakna.¹⁷ Terdapat penelitian sebelumnya yang menyatakan bahwa rokok dikaitkan dengan peningkatan tingkat karies gigi tetapi hubungan sebab dan akibat ini tidak bermakna. Efek rokok lokal dan sistemik pada rongga mulut tergantung pada berbagai faktor seperti metode,

frekuensi, dan lamanya penggunaan serta tergantung dosis penggunaan rokok. Hal tersebut juga berkaitan dengan penelitian ini yaitu didapatkan hasil pengalaman karies yang tinggi pada penghuni panti sosial yaitu pada kriteria tinggi dengan nilai 4,8 indeks DMF-T menurut WHO tetapi tidak terdapat hubungan antara durasi merokok dengan karies gigi. Hal ini didukung oleh penelitian Bachanek dan Rudnicke-Nakoneczna¹⁸ yang melaporkan bahwa pada 124 perokok berusia 20-54 tahun tidak didapatkan hubungan bermakna antara jumlah *Streptococcus mutans* dan *Lactobacillus* pada saliva yang dapat menyebabkan karies gigi terkait dengan jumlah rokok yang dihisap setiap hari, durasi merokok dan jenis rokok yang dikonsumsi. Lodagala menyatakan bahwa pengalaman karies gigi pada perokok di kalangan nelayan tergolong tinggi yang dikaitkan dengan jenis kelamin, frekuensi merokok, kebiasaan merokok, dan jenis rokok, tetapi tidak terdapat hubungan merokok dengan karies gigi. Hal ini dapat disebabkan karena faktor lingkungan, kebiasaan buruk merokok lainnya, asupan makanan, tidak menjaga kebersihan mulut yang baik, tidak berkunjung ke dokter gigi, frekuensi menyikat gigi yang salah, dan lainnya.¹⁹

Pada penelitian ini juga ditambahkan hasil dari kebiasaan merokok yang terdapat pada kuesioner penelitian, seperti kebiasaan merokok di pagi hari, frekuensi merokok setiap hari, frekuensi menyikat gigi dalam satu hari, dan terakhir berkunjung periksa ke dokter gigi, dan lain-lain yang merupakan faktor yang sama dengan penelitian Lodagala et al.¹⁹ Hasil yang diperoleh juga sejalan yaitu tidak adanya hubungan merokok dengan karies gigi. Jiang et al²⁰ melaporkan bahwa hubungan durasi merokok dengan terjadinya karies gigi kurang bermakna sehingga dibutuhkan lebih banyak studi prospektif dan ekstensif mengenai topik ini untuk mendapatkan hasil yang bermakna. Hal tersebut membutuhkan pemeriksaan nikotin pada saliva perokok dan menentukan keparahan yang spesifik dari rokok. Berbeda halnya pada penelitian ini yaitu tidak dilakukan pemeriksaan nikotin dalam saliva perokok sehingga diperoleh hasil yaitu tidak terdapat hubungan antara durasi merokok dengan terjadinya karies gigi.

Fu'adah et al²¹ berpendapat bahwa faktor kemiskinan merupakan alasan utama dari tunawisma dan ditandai oleh rendahnya pendidikan, produktifitas kerja, pendapatan, kesehatan dan gizi serta kesejahteraan hidupnya. Hal tersebut sesuai dengan hasil kuesioner yang dilakukan pada penelitian ini yaitu mengenai frekuensi menyikat gigi sehingga dapat disimpulkan bahwa jawaban tidak tentu menyikat gigi dalam sehari lebih banyak yaitu sebanyak 46 orang (46%) dibandingkan dengan menyikat gigi dua kali dalam sehari. Demikian pula dari frekuensi terakhir kunjungan ke dokter gigi dapat disimpulkan bahwa jawaban tidak pernah ke dokter gigi yaitu sebanyak 78 orang (78%) (Tabel 6), sehingga dapat disimpulkan bahwa tunawisma atau penghuni panti sosial mempunyai tingkat pendidikan rendah terutama pengetahuan kesehatan gigi dan mulut, dan pendapatan yang rendah untuk berkunjung periksa ke dokter gigi. Hal tersebut sesuai pengalaman karies dengan skor DMF-T 4,8 yang termasuk kriteria tinggi menurut WHO.

Pada penelitian ini disimpulkan bahwa tidak terdapat hubungan bermakna antara durasi merokok dan terjadinya karies gigi. Hal ini menyatakan bahwa risiko merokok dengan faktor durasi merokok ternyata tidak langsung menyebabkan terjadinya karies gigi tetapi terdapat faktor-faktor pendukung terkait kebersihan dan kesehatan gigi dan mulut, salah satunya ialah menghilangkan kebiasaan merokok. Berbagai penelitian melaporkan bahwa merokok dapat mengurangi kebersihan gigi dan mulut sehingga berlanjut menimbulkan masalah pada gigi yaitu karies. Oleh karena durasi merokok bukan merupakan faktor yang bermakna maka diperlukan penelitian lanjut untuk mendapatkan faktor-faktor lain terjadinya karies gigi yang disebabkan oleh karena kebiasaan merokok.

SIMPULAN

Tidak terdapat hubungan antara durasi merokok dengan terjadinya karies gigi pada penghuni panti sosial Bina Insan Bangun Daya 1, Kedoya Jakarta Barat.

Upaya edukasi dan preventif perlu dilakukan terhadap penghuni panti sosial tentang efek yang dapat ditimbulkan dari merokok terhadap kesehatan gigi dan mulut, terutama kebiasaan buruk yang dapat memperparah kesehatan gigi dan mulut yaitu karies gigi seperti frekuensi

menyikat gigi dalam sehari yang benar, berkunjung ke dokter gigi untuk pemeriksaan gigi dan mulut, pola makan yang sehat, mengurangi konsumsi rokok.

Disarankan untuk melakukan penelitian lebih lanjut dengan jumlah subjek lebih besar, dan ditambahkan faktor lain yang dapat menyebabkan karies gigi terhadap durasi merokok agar hasil lebih akurat, dan perlu penelitian lebih lanjut untuk mengetahui faktor risiko dan penyebab dari karies gigi terhadap durasi merokok.

Konflik Kepentingan

Penulis menyatakan tidak ada konflik kepentingan dalam penelitian ini.

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SURAT TUGAS

No. : 88/D/FGK/I/2023

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menerangkan bahwa dosen tersebut dibawah ini :

1. Pindobilowo, drg., M.Kes
2. Dwi Ariani, drg., Sp.PM
3. Margaretha Herawati, drg., M.Biomed

Untuk membuat karya ilmiah berupa penelitian dengan judul:

“Kontribusi Durasi Merokok sebagai Penyebab Terjadinya Karies Gigi pada Penghuni Panti
Sosial”

Demikian surat keterangan ini untuk dapat diketahui.

Jakarta, 17 Januari 2023

Dekan,

ub.

Wakil Dekan Bid. Adm. & Keuangan



Umi Ghoni Tjiptoningsih, drg., Sp. Perio



Effectiveness Difference of Pomegranate Peel Extract and Green Tea on Salivary pH

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ABSTRACT

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Background: The acidic environment due to the interaction of bacteria in the oral cavity triggers the occurrence of dental caries. It is characterized by the increased of bacterial activity at critical pH (4.5-5.5). Mouthwash is used as an antibacterial, but it has unwanted side effects. Herbal mouthwash is considered as an alternative, such as pomegranate peel extract and green tea which have been tested for their effectiveness against *Streptococcus mutans* bacteria.

Objective: To provide information on the differences in the effectiveness of pomegranate peel extract and green tea on salivary pH.

Methods: This is an experimental study with a pretest-posttest control group design. Normality test using Shapiro-Wilk, and statistical test using Paired T-Test and Independent T-Test.

Results: There was a significant difference in effectiveness between pomegranate peel extract and green tea on salivary pH.

Conclusion: Pomegranate peel extract is able to increase salivary pH while green tea lowers salivary pH. This difference in effectiveness allows for different indications to take advantage of the two types of herbs.

KEYWORDS:

Green tea, pomegranate peel extract, salivary pH.

INTRODUCTION

The oral health of the Indonesians needs attention from medical staff. Oral health in Indonesia according to Riskesdas data in 2013 showed an increase in the percentage of the population who had oral health problems from 2007 which was 23.2% to 25.9%.¹ Oral health that is not maintained properly will be a triggering factor for dental caries due to the formation of dental plaque.² Federation Dentaire Internationale (FDI) stated that dental caries is still the most common disease and is a dental problem with the largest proportion in Indonesia, that is 45.3% based on the results of the 2018 Basic Health Research (Riskesdas).³

The risk of dental caries is influenced by oral hygiene factors. Complex interactions between carbohydrates and bacteria *Streptococcus mutans* causes an acidic environment in the saliva.

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Acid produced by bacteria causes demineralization process on the enamel surface. Dental caries occurs due to the demineralization process that is not balanced with tooth remineralization. The growth of acidogenic bacteria such as *Streptococcus mutans* and *Lactobacillus* it is easy to occur when the pH of saliva is low, around 4.5 to 5.5, so that saliva parameters are a factor that plays an important role in the process of dental caries.^{2,4,5}

Brushing your teeth and using mouthwash is an effort to keep your teeth and mouth clean. Mouthwash is commonly used to clean the oral cavity, prevent dental caries and periodontal disease because it contains antimicrobials with a comfortable taste, easy to use and useful for refreshing the mouth.^{6,7} Based on the composition, mouthwash is divided into three types, namely herbal mouthwash, non-alcoholic mouthwash, and alcoholic mouthwash.^{8,9}

Herbal ingredients are the right consideration as an alternative to maintain optimal oral hygiene. The use of herbal ingredients as mouthwash can minimize unwanted side effects and has scientifically proven benefits and safety.¹⁰ Pomegranate peel extract and green tea are natural ingredients with minimal side effects and have been tested for their

effectiveness against bacteria *Streptococcus mutans* and plaque accumulation.^{11,12,13}

Pomegranate peel extract has outstanding antimicrobial activity against *Streptococcus mutans* present in the oral cavity and has proven its potential as an anti-cariogenic agent.¹⁴ In addition to pomegranate peel extract, green tea also has the ability to reduce and inhibit the growth of *Streptococcus mutans* because it contains catechins so that it is effective in reducing dental plaque index. Green tea contains fluoride in catechins which are weakly alkaline.^{13,15} Based on this background, this study aims to determine the difference in effectiveness between pomegranate peel extract and green tea on salivary pH.

MATERIAL AND METHODS

This research was conducted at the Laboratory of the Faculty of Dentistry, University of Prof. Dr. Moestopo (Religious) on March 16, 2022. The number of research samples used were 32 samples of artificial saliva with a pH of 6.8 which were divided into two treatment groups, group 1 treatment with pomegranate peel extract and group 2 treatment with green tea. Salivary pH measurements were carried out before treatment and 100 seconds after treatment.

The type of research used is experimental research, with a pretest-posttest group design. The sample used in this study was McDougall's artificial saliva with the composition of Sodium Phosphate (Na_2HPO_4), Potassium Diphosphate (KH_2PO_4), Potassium Chloride (KCl), Sodium Chloride (NaCl), Sodium Bicarbonate (NaHCO_3), Urea ($\text{CO}(\text{NH}_4)_2$) with a pH of 6.8.¹⁶

Preparation of pomegranate peel extract solution was carried out by 3 grams of pomegranate peel extract

powder brewed with 200 ml of warm water, then stir until homogeneous and reached room temperature. The solution was divided into 16 parts with the volume of each solution was 10 ml which would be exposed to each artificial saliva sample. Before mixing, the pH measurement of the pomegranate peel extract solution was carried out first.

Preparation of green tea solution is done by brewing one green tea bag for 2-3 minutes with 200 ml of warm water until it reaches room temperature. The solution is divided into 16 parts with the volume of each solution is 10 ml which will be exposed to each artificial saliva sample. Before mixing, the pH measurement of the green tea solution was carried out first.

Preparation samples were carried out through artificial saliva with a volume of 10 ml and a pH of 6.8 were grouped into two groups. Group 1 was exposed to a solution of pomegranate peel extract, group 2 was exposed to a solution of green tea. Each group consisted of 16 samples of artificial saliva.

Saliva pH measurement is carried out using a pH meter which must be cleaned and calibrated before use. Calibration of the pH meter using a standard pH or called a buffer pH. The pH meter calibration step is carried out according to the instructions on the packaging.

This study used the Shapiro-Wilk normality test. The data can be declared normally distributed if the significance value is > 0.05 and abnormally distributed if the significance value < 0.05 . Because the data were normally distributed, statistical analysis used Paired T-Test for comparison before and after treatment in each solution, and Independent T-Test for comparison of results after treatment of the two herbal ingredients.

RESULT

The results in this study can be seen in the following table:

Table 1. Frequency Distribution Pretest-Posttest in the Pomegranate Peel Extract and Green tea Group

Variable	Mean	SD	Median (Minimum-Maximum)
Pomegranate Peel Extract Pretest	6.8	.00000	6.8000 (6.80-6.80)
Pomegranate Peel Extract Posttest	6.8919	.04778	6.9000 (6.78-6.97)
Green Tea Pretest	6.8	.00000	6.8000 (6.80-6.80)
Green Tea Posttest	6.5400	.08824	6.5250 (6.38-6.78)

Analysis of the descriptive data in table 1 shows that the pH of saliva before treatment with pomegranate peel extract and green tea has a value mean, median, minimum and maximum each of 6.8 with a standard deviation of 0.00000 indicating that all values in the data are the same. The greater the value of the standard deviation of a data, then greater the distance between each data point and the mean value. The pH value of saliva after treatment with pomegranate peel extract increased with a value of mean, median, minimum and

maximum respectively 6.8919, 6.9000, 6.78, 6.97 with a standard deviation smaller than the mean that is 0.04778 indicates that the value of mean can be used as a representation of the entire data. Salivary pH value after treatment with green tea decreased with a value of mean, median, minimum and maximum are 6.5400, 6.5250, 6.38, 6.78, respectively, with a standard deviation smaller than the mean that is 0.08824 indicates that the value of mean can be used as a representation of the entire data.

Table 2. Data Normality Test

Treatment Group	Shapiro-Wilk		
	Statistics	df	Sig.
Salivary pH with Pomegranate Peel Extract	.965	16	.744
Salivary pH with Green Tea	.903	16	.090

*Shapiro-Wilk, $p > 0.05$, Saliva pH value was constant when the Variable Group = Pomegranate Peel Extract Pretest and Green tea Pretest.

The results of the normality test based on table 2, the posttest data were considered normally distributed because the p value > 0.05 , which was 0.744 in the pomegranate peel extract posttest and 0.090 in the green tea posttest. The pretest data of pomegranate peel extract and green tea had constant values. When showing the value of the data spread, the normal distribution has a number of main characteristics, one

of which has the same mean, median, and mode values. Therefore, the distribution is called unimodal. Based on this distribution theory, the pretest data of pomegranate peel extract and green tea were considered normally distributed, so the test used parametric tests, namely the Paired T-Test test for the paired group and the Independent T-Test test for the unpaired group.

Table 3. Test Results for Differences in Saliva pH Before and After Treatment

	Sig. (2-tailed)
Pomegranate Peel Extract Pretest-posttest	0.000*
Green Tea Pretest-posttest	0.000*

* $p < 0.05$, CI 95% (Paired T Test)

In table 3, the results of the Paired T-Test statistic test, the Asymp value. Sig. (2-tailed) for the pomegranate peel extract treatment group in table 3 of 0.000, the value is smaller than 0.05, it can be interpreted that there is a significant difference between the salivary pH before and

after the pomegranate peel extract treatment. Meanwhile, in the green tea group, the Asymp value was obtained. Sig. (2-tailed) of 0.000, the same value is smaller than 0.05, it can be interpreted that there is a significant difference between saliva pH before and after treatment with green tea.

Table 4. Differences in Saliva pH After Treatment with Pomegranate Peel Extract and Tea Green

	Sig. (2-tailed)
Saliva pH after Pomegranate Peel Extract Treatment	0.000*
Salivary pH after Green Tea Treatment	

* $p < 0.05$, CI 95% (Independent T Test)

In table 4, the results of the Independent T-Test statistical test obtained the Asymp value. Sig. (2-tailed) of 0.000, the value is smaller than 0.05, it can be interpreted that there is a significant difference in effectiveness between pomegranate peel extract and green tea on salivary pH.

DISCUSSION

This study was conducted to examine the difference in effectiveness between pomegranate peel extract and green tea on salivary pH. Pomegranate peel extract and green tea used in this study are products of BPOM (Food and Drug Supervisory Agency) which are commonly consumed by the public. Salivary pH values were measured 100 seconds after exposure to pomegranate peel extract and green tea in artificial saliva which had a neutral pH of about 6.8. In 2016, Umar et al conducted a study on the effect of pomegranate

peel extract on the number of Streptococcus mutans which concluded that pomegranate peel extract has the potential as an anticariogenic agent that can increase salivary pH.¹⁴ This is not much different from the benefits of green tea in Putri's research in 2019 which has the potential as an anticariogenic so that it can increase the pH of saliva due to its catechin content.¹⁷

The first study using pomegranate peel extract showed an increase in salivary pH (mean salivary pH became 6.89 from the initial pH of 6.8). The results of this study are in line with the research of Umar et al in 2016 and Kadam et al 2019 which stated that rinsing pomegranate peel extract was able to increase the pH of saliva.^{12,14} This increase in salivary pH has a positive impact on the oral cavity, because it can increase the occurrence of remineralization. The

existence of a remineralization process will reduce the possibility of caries.⁵

In the previous theory, normal pH values ranged from 6.5-7.¹⁸ The average salivary pH value after exposure to pomegranate peel extract was 6.89. This can be caused by the absence of antibacterial interactions as in the actual condition of the human oral cavity. Previous research on pomegranate peel extract was assessed to be able to increase salivary pH due to its anticariogenic effect. The decrease in the number of cariogenic bacteria can result in reduced acid production resulting in an increase in salivary pH.¹⁹ This is also stated in the research of Umar and Kadam regarding the anticariogenic effect of pomegranate peel extract which is able to increase the pH of saliva. However, the anticariogenic effect was also influenced by the concentration level of the pomegranate peel extract, the higher the concentration of the pomegranate peel extract, the greater the inhibition zone.²⁰ In addition, the time factor also has an effect, based on the results of Kadam's research in 2019 there were differences in the difference in the increase in salivary pH at different time measurements, namely 10 minutes, 30 minutes and 60 minutes. The highest salivary pH value occurred 60 minutes after gargling with pomegranate peel extract.¹²

In the second study, there was a decrease in salivary pH after exposure to green tea (the mean salivary pH value decreased to 6.54 from the initial pH of 6.8). The results of this study are in line with Yusriyanti's research in 2016 with the results of a decrease in salivary pH after gargling green tea at the first 15 minute interval.²¹ The impact of decreasing salivary pH can cause tooth demineralization, if the salivary pH of the oral cavity is low (4.5-5, 5) will facilitate the growth of acidogenic bacteria such as *Streptococcus mutans* and *Lactobacillus*.⁵

The decrease in the pH value of saliva can occur because the buffer capacity takes 30-60 minutes for return to normal. This is in accordance with the results of Yusriyanti's 2016 study, an increase in salivary pH occurred after 30 minutes.²¹ Different with the research of Putri et al in 2019 which stated the effectiveness of green tea increasing salivary pH. However, this is due to the antibacterial ability of the catechin content in green tea against *Streptococcus mutans* bacteria. Catechins can inhibit the growth of *Streptococcus mutans* bacteria by binding to components of the bacterial cell wall and damaging the lipid bilayer thereby increasing salivary pH due to a reduced number of bacteria that can produce acid in the oral cavity.¹⁷

The results of statistical tests in this study showed a significant difference in effectiveness between pomegranate peel extract and green tea on salivary pH. If pomegranate peel extract is able to increase the pH of saliva, it can minimize the occurrence of an acidic circumstances in the oral cavity so as to prevent dental caries and can be used as an alternative mouthwash with herbal ingredients that are safe for long-term use and minimize various side effects that can be caused. On the other hand, if there is a decrease in salivary pH in green

tea, it will cause an acidic circumstance in the oral cavity that triggers dental caries. The effect of lowering the pH can be used in the oral cavity that is too alkaline, because if there is an increase in the pH of saliva (alkaline) it will result in the formation of calculus.¹⁸

This research is expected to provide benefits as a reference for further research in the field of dentistry, but there are some limitations. The limitation of this study was that it did not involve human subjects because the time of the study coincided with the Covid-19 pandemic. Another limitation, the assessment of changes in salivary pH in this study was only carried out at a certain time, namely 100 seconds after exposure, so there was no comparison of results with a longer time duration.

Based on this research, it can be concluded that there is a significant difference in effectiveness between pomegranate peel extract and green tea on salivary pH. Pomegranate peel extract tends to increase salivary pH, while green tea tends to decrease salivary pH. This difference in effectiveness supports the different indications for utilizing the two types of herbs.

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SURAT TUGAS

No. : 259/D/FKG/III/2023

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1. Poetry Oktanauli, drg., M.Si
2. Pinka Taher, drg., M.Biomed
3. Azyyati Patricia Zikir, drg., M.Sc
4. Margaretha Herawati, drg., M.Biomed

Untuk membuat karya ilmiah berupa penelitian dengan judul:

“Effectiveness Difference of Pomegranate Peel Extract and Green Tea on Salivary pH”

Demikian surat keterangan ini untuk dapat diketahui.

Jakarta, 3 Maret 2023

Dekan,

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Wakil Dekan Bid. Adm. & Keuangan


Umi Ghoni Tjiptoningsih, drg., Sp. Perio



Effect of Robusta Coffee (*Coffea Canephora*) on the Degree of Acidity (pH) of Saliva

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ABSTRACT

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Background: saliva is a complex fluid produced by the salivary glands and plays an important role in maintaining oral health. Saliva consists of 98% - 99% water, about 2% is composed of organic & inorganic components, electrolytes, and various enzymes. Robusta coffee (*Coffea canephora*) has the main content of caffeine, carbohydrates, protein and free amino acids, and chlorogenic acid. The content in the coffee can cause changes in the level of saliva acidity (pH).

Purpose: to better understand the effects of robusta coffee (*Coffea canephora*) against level of saliva acidity (pH).

Method: based on the exclusion and inclusion criteria, a total of fifteen (15) journals were analyzed from the Google Scholar, Science Direct, PubMed's and NCBI. The journals that analyzed are regarding an article that discusses the effect of coffee on salivary pH.

Conclusion: this review reveals that robusta coffee (*Coffea canephora*) causes a decrease in the acidity (pH) of saliva. This happens due to the higher the concentration of the coffee, the pH of the coffee becomes more acidic, but there are several studies reports that low concentrations of robusta coffee (*Coffea canephora*) do not cause a decrease in salivary pH.

KEYWORDS:

Salivary pH, robusta coffee, saliva.

INTRODUCTION

Oral health is a reflection of an overall healthy body and affects a person's quality of life. Individual dietary patterns are important things that need to be considered to maintain dental and oral health. Excessive intake of certain substances can damage organs, including the oral cavity as the first access point when individuals are eating and drinking activities. Dietary patterns can affect the degree of acidity (pH) of saliva and play a direct role in the formation of dental caries.^{1,2}

Saliva is an exocrine gland that plays a very important role in the oral environment and consists of almost 99% water and the remaining 1% is a combination of molecules such as calcium, magnesium, potassium, chloride, bicarbonate and phosphate. Saliva also contains various body defense substances.^{3,4} The functions of saliva include

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lubrication of the oral cavity, cleansing substances, aiding digestion and buffering capacity to neutralize acids or bases. Flow rate, acidity (pH), and characteristics of saliva and oral hygiene are interrelated with the risk of oral disease.^{3,5}

Potential of hydrogen (pH) is a measure that determines the acid or alkaline degree of a solution, pH is measured on a scale of 0 to 14. The degree of acidity (pH) of saliva under normal circumstances ranges from 5.6 to 7.0 with an average pH of 6.7. The optimum salivary acidity for bacterial growth and development is 6.5-7.5 and if the oral cavity has a low pH between 4.5-5.5 it will facilitate the growth of acidogenic bacteria such as *Streptococcus mutans* and *Lactobacillus*.^{6,7}

Robusta coffee (*Coffea canephora*) is one of the most widely cultivated coffee types in Indonesia. Robusta coffee has a higher planting area and resistance to the environment and pests compared to Arabica coffee. Robusta coffee is a second-class coffee after Arabica coffee because the taste of Robusta coffee is bitter, less acidic and has a higher caffeine content compared to Arabica coffee.⁸ Coffee has a certain taste not only based on its type, but also based on the growing location, climate, harvest and post-harvest

processes, roasting process, grinding and brewing methods that determine the taste of the resulting coffee.⁹

Coffee also contains many compounds that are beneficial to the body, one of which is caffeine, which is very useful in inhibiting the growth of cancer cells. Antioxidants contained in coffee are more than fruits and vegetables. Some antioxidant compounds found in coffee include flavonoids, polyphenols, coumarins, proanthocyanidins, chlorogenic acid, trigonellins and tocopherols.¹⁰

Coffee that is drunk regularly can cause a decrease in the degree of acidity (pH) of saliva because coffee contains acidic substances. The degree of acidity (pH) of saliva is one of the main factors that play a role in preventing dental caries, tooth demineralization, and other diseases in the oral cavity.¹¹ Research conducted by Paroza et al. in 2021 found that robusta coffee solution can affect changes in salivary pH in healthy subjects. This is indicated by the results of the average value of measuring the pH of saliva that has been treated with robusta coffee solution has decreased pH.¹² A decreased salivary acidity (pH) indicates a high risk of dental caries.¹³ Research conducted by Masoumi et al. in 2016 found that the coffee solution did not cause a decrease in the pH of the saliva of healthy subjects.¹⁴ These studies show differences in the results of salivary pH after being treated with robusta coffee.

Based on this, it can be seen that robusta coffee has an effect on salivary pH. It is hoped that by knowing these effects, people can rethink the risks and consequences of robusta coffee consumption.

METHODS

This literature review was made by analyzing and evaluating scientific knowledge from various references. The references used are sourced from articles, journals, and websites accessed through databases: Google Scholar, Research Gate, PubMed, and NCBI. The search strategy was based on the keywords salivary pH, robusta coffee, and saliva or Salivary pH, robusta coffee, and saliva. The types of journals used in writing are research journals and literature reviews published from 2017-2020. The initial selection of research journals and literature reviews was carried out based on the title and abstract related to robusta coffee, then the text was read in its entirety. Information related to the evaluated variables was then collected based on: author's name, year, type of article, and results with the theme of discussion regarding the effect of robusta coffee on salivary pH.

RESULTS

The results found in the searched database are shown in the flowchart provided in figure 1. Six hundred and five references were found in the Google Scholar database, 100 references were found in the Research Gate database, 33 references were found in the PubMed database, and 19 references were found in the NCBI database. After conducting an analysis based on the inclusion criteria and

reading the available abstracts, the titles and relevance of the abstracts were filtered so that 30 articles were selected. Articles published under 2010 are not included as references because the provisions of this writing are to use journals from the last 10 years. Total articles read as a whole were 20. Articles discussing the effect of coffee on salivary pH in general were 15. Articles regarding articles discussing the effect of robusta coffee on lowering salivary pH by 6, articles discussing the effect of robusta coffee on not lowering salivary pH by 1 and 1 article discussing the effect of Robusta coffee concentration on salivary pH. The articles obtained were then analyzed to understand and draw conclusions from the various research articles. It was found that there were articles discussing the effects of Robusta coffee on the degree of acidity (pH) of saliva, so that the total number of articles relevant to the theme of the literature review was 6. The referenced journals were published between 2013 and 2021.

The general summary of the results of the analysis of the findings of important data from various research articles stated that consuming Robusta coffee can affect salivary pH. This influence is still the pros and cons because of differences in the results of research that has been conducted by experts. Some research experts argue that consumption of Robusta coffee can cause a decrease in salivary pH. Other researchers also stated that Robusta coffee consumption did not cause a significant change in salivary pH. This is a concern for health practitioners, in order to provide knowledge to the public regarding the various opinions of these experts. The main findings related to the effect of robusta coffee on the degree of acidity (pH) of saliva can be seen in table 1.

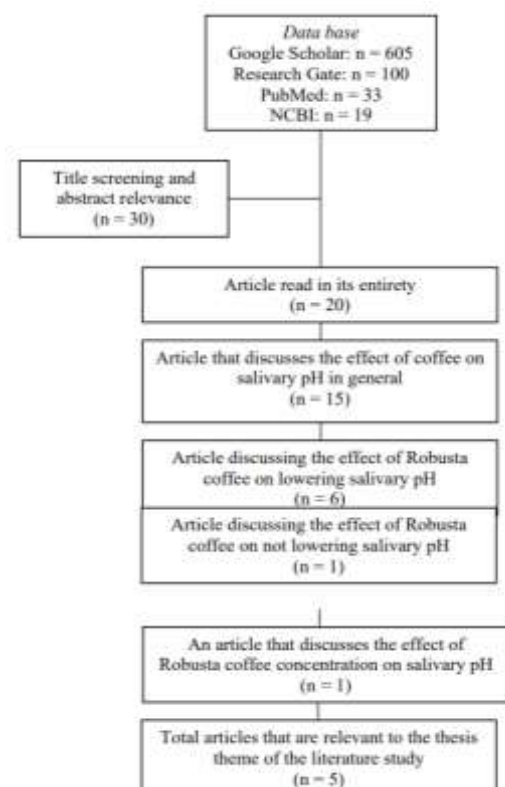


Figure 1. Publication flowcharts of all databases

Table 1. Relevant Article Descriptions Based on Author, Year, Type of Article, and Results

Author	Year	Type of Article	Result
Paroza Z, Deynilisa S	2021	Research Report	The average salivary pH before consuming Robusta coffee was 7.020 and after consuming Robusta coffee was 5.537. Paired T-test obtained results of $p = 0.000$ ($p < 0.05$) indicating a decrease in salivary pH after consuming Robusta coffee.
Soraya C, Sunnati, Munawar S.	2013	Research Report	Based on the measurement results, the pH value of Robusta coffee before being exposed to artificial saliva was 5.54 (pH of artificial saliva = 6.8). The results of the analysis showed that the average pH value of saliva after being exposed to Robusta coffee decreased in pH. In measuring the pH of Robusta coffee exposed to artificial saliva, the average pH value was 6.00. Based on the results of the Anova analysis, Robusta coffee with artificial saliva showed a significant relationship ($p < 0.05$), so it can be concluded that there is an effect of Robusta coffee on changes in salivary pH.
Imran H, Nurdin, Nasri	2016	Research Report	The results showed that there was an effect of coffee consumption on a decrease in salivary pH where the mean was 5.7 in subjects who regularly consumed coffee and were not coffee drinkers with a mean of 6.5 which was proven by a significant effect. The results of statistical analysis of data (Independent T-Test) obtained $p = 0.040$. The conclusion from the research results states that coffee consumption significantly affects the decrease in salivary pH in the adult age group.
Sa'diah K, Hayati M	2018	Research Report	Based on the research conducted, the results showed that the average salivary pH of the coffee addict group was lower than that of the control group, with a mean coffee addict pH of 5.30 (min 5.01-max 5.88) and the control group 6.29 (min 5.75-max 6.92). This means that the pH of the control group is better than the pH of the coffee addict group.
Masoumi Setoudehmaram Golkasri A, Tavana Z.	S, 2017 S,	Research Report	The research conducted showed that the initial salivary pH measurement for healthy subjects was 6.86 and for subjects with periodontitis it was 6.87. The mean value of salivary pH after rinsing with coffee solution in healthy subjects was 6.86 and in subjects with periodontitis it was 6.86. Based on these results, coffee did not cause a significant change in pH in healthy subjects or subjects with periodontitis.

DISCUSSION

Saliva has a major role in maintaining oral health and hygiene and protecting teeth from caries.¹⁵ Saliva in the oral cavity is one of the body's defense mechanisms.¹⁶ The degree of acidity (pH) of saliva is a measure that describes the degree of acidity of saliva on a scale of 0 to 14 and is influenced by changes caused by day and night rhythms, diet, speed salivary flow and salivary buffer capacity.¹⁷ A decrease in salivary pH greatly affects the stability of saliva in protecting the oral

mucosa so that the attachment of bacteria to the oral mucosa will easily occur. The attachment of bacteria to the mucosa will facilitate the occurrence of infections which can cause various diseases in the oral cavity.¹⁶

Diet greatly affects the salivary pH, 15 minutes after eating, the salivary pH is acidic but will return to normal within 30 – 60 minutes.¹⁸ The buffer system in saliva functions to prevent the rise and fall of pH caused by food and drink.¹⁷ The oral cavity has two mechanisms for maintaining

salivary pH. First, salivary flow removes carbohydrates that are metabolized by bacteria thereby reducing acid production. Second, the acidity of food and drink and bacterial activity are neutralized by the buffer system.¹⁹

The habit of consuming coffee has become a necessity and routine for both men and women, young people, teenagers and the elderly. The habit of consuming coffee can cause changes in salivary pH because coffee contains acids. Robusta coffee generally has a low pH (average pH value 5.25-5.40) however, does not cause a critical change in salivary pH.²

Research conducted by Paroza et al. in 2021 showed that the average salivary pH before consuming robusta coffee was 7.020 and after consuming robusta coffee was 5.537. The average salivary pH before consuming Arabica coffee was 6.887 and after consuming Arabica coffee was 4.867. The decrease in salivary pH in the group that consumed Arabica coffee was greater than that of Robusta coffee. This is because the two coffees contain acids, but Arabica coffee is generally more acidic than Robusta coffee. Coffee consumption can cause a decrease in salivary pH because coffee contains high concentrations of simple carbohydrates, namely sucrose and monosaccharides.²

Coffee contains a high concentration of carbohydrates, fermenting carbohydrates will produce acids which can cause a decrease in salivary pH. Changes in salivary pH are influenced by the type of food consumed, stimulation of salivary secretion, salivary flow rate, time, oral microorganisms, and salivary buffer capacity. The degree of salivary acidity decreases due to the production of acid from bacteria after consuming carbohydrates. Coffee can be classified as a drink that can increase the risk of dental caries if consumed continuously for more than 30-60 minutes.²⁰

Research conducted by Imran et al. in 2016, showed the effect of consuming robusta coffee on lowering salivary pH, the average salivary pH was 5.7 in subjects who regularly consumed coffee and 6.5 in subjects who did not consume coffee. The results of statistical analysis of data (Independent T-Test) obtained $p = 0.040$. The conclusion from the results of this study is that the consumption of Robusta coffee significantly affects the decrease in salivary pH in the adult age group.²¹

Similar research was conducted by Sa'diah et al. In 2018 the results showed that the average salivary pH of the coffee holic group was lower than the control group, with the average coffee holic pH being 5.30 (min 5.01-max 5.88) and the control group 6.29 (min 5.75 - max 6.92). This study showed that the pH of the control group was better than the pH of the coffee holic group. The degree of salivary acidity in coffee holics is lower than those who do not, and the decrease in salivary pH occurs within 5-7 minutes after consuming coffee because the main content of robusta coffee consists of sucrose which is an active compound to colonize with *Streptococcus mutans* resulting in a decrease in salivary

pH. The content of other ingredients in the coffee solution consists of chlorogenic acid and nicotinic acid so that consuming coffee has a direct effect on reducing the salivary pH to become acidic.²²

Research conducted by Masoumi et al. in 2016, showed the results of the initial healthy subject's average salivary pH of 6.86. The mean value of salivary pH after rinsing Robusta coffee solution in healthy subjects was 6.86. Based on the results of this study, it appears that robusta coffee does not cause a significant change in the salivary pH of healthy subjects.¹⁴

The difference in the results of the studies conducted was caused by various factors, including different concentrations of coffee. Higher coffee concentrations result in an increasingly acidic coffee pH, because the main ingredients of coffee consist of carbohydrates, sucrose, free amino acids, lipids, organic acids, chlorogenic acid, and caffeine which can lower pH.¹⁴

Coffee concentration factors, different types of treatment and methods can cause different changes in the degree of salivary acidity. The way a person consumes acidic foods and soft drinks has been known to influence differences in acid content and the pattern of damage that occurs.¹³

There are six drinking methods according to Soraya, namely holding the drink in the mouth, sucking for a short time with a glass, sucking for a long time with a glass, drinking with a baby bottle and drinking using a straw. The results showed that holding the drink in the mouth before swallowing caused the greatest decrease in pH, followed by prolonged sucking with the glass, whereas direct gulping showed only a small decrease in pH.¹³

Based on studies conducted by experts, robusta coffee can cause a decrease in salivary pH due to coffee contents such as caffeine, carbohydrates, sucrose, organic acids and chlorogenic acid which can lower salivary pH. The concentration of coffee and the method of consuming coffee also affect the acidity that will be produced, the higher the coffee concentration, the lower the salivary pH will be, and vice versa. Consuming robusta coffee (*Coffea canephora*) at a concentration determined by the manufacturer can generally lower salivary pH significantly.¹³

CONCLUSIONS AND SUGGESTIONS

Robusta coffee (*Coffea canephora*) has the main content of caffeine, carbohydrates, proteins and free amino acids, and chlorogenic acid. The content in coffee can reduce the degree of acidity (pH) of saliva. Based on several research results conducted from 2013 to 2022, it can be concluded that robusta coffee (*Coffea canephora*) causes a decrease in the degree of acidity (pH) of saliva. This happens because the higher the concentration of coffee, the more acidic the pH of the coffee, but there are some studies that report that robusta coffee (*Coffea canephora*) with low concentrations does not cause a decrease in salivary pH.

It is hoped that other studies will be carried out so that more information can be obtained about robusta coffee (*Coffea canephora*) that is safe for consumption, taking into account the concentration of coffee, time and method of consumption so that it can still be consumed without causing a decrease in salivary pH.

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SURAT KETERANGAN

No. : 556/D/FGK/V/2023

Dekan Fakultas Kedokteran Gigi – Universitas Prof. Dr. Moestopo (Beragama)
menerangkan bahwa dosen tersebut dibawah ini :

1. Poetry Oktanauli, drg., M.Si
2. Azyyati Patricia Zikir, drg., M.Sc
3. Pinka Taher, drg., M.Biomed
4. Margaretha Herawati, drg., M.Biomed

Untuk membuat karya ilmiah berupa penelitian dengan judul:

“Effect of Robusta Coffee (Coffee Caephora) on the Degree of Acidity (pH) of Saliva”

Demikian surat keterangan ini untuk dapat diketahui.

Jakarta, 5 Mei 2023

Mengetahui,
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Wakil Dekan Bid. Adm. & Keuangan

Umi Ghoni Tjiptoningsih, drg., Sp. Perio



Dental Faculty Students' Understanding of Dental Care during the COVID-19 Pandemic

Authors

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Abstract

Background: Teeth are one of the important organs in the stomatognathic system. Public awareness of the importance of dental and oral examinations is a concern for health practitioners. This is supported by the fact that the Indonesian population who receive dental and oral care when experiencing dental and oral problems is still relatively low. The occurrence of the COVID-19 pandemic has resulted in restrictions on visits to the dentist. Students can utilize teledentistry to consult with dentists.

Purpose: Hence, the dental students' understanding towards dental care during the COVID-19 pandemic can be known.

Methods: The research was conducted at the Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) University in August-September 2022. The number of subjects in this study was determined by total sample, snowball method who had filled out the questionnaire.

Result: Based on the results of the research that has been conducted, it appears that the most respondents involved in this study are female, as many as 90.5%. Respondents who have knowledge of how to seek treatment or consult a dentist by telephone or teledentistry since the pandemic are 74.3%.

Conclusion: This study reveals that dental students' understanding of dental care during the COVID-19 pandemic is quite good. One of the efforts to prevent the spread of COVID-19 is through the use of teledentistry which is considered very effective and efficient.

Keywords: COVID-19, dental students, teledentistry.

Introduction

The stomatognathic system is the functional unit of the body that coordinates the functions of mastication, swallowing and speech. The main components of the stomatognathic system are the temporomandibular joint, masticatory muscles and the tooth-periodontal complex that work in harmony and are closely related in a system. Therefore, teeth are one of the important organs in

the stomatognathic system. Disorders that occur in the teeth will disrupt the stomatognathic system.¹

Public awareness of the importance of dental and oral examinations is a concern for health practitioners. This is supported by the fact that the Indonesian population who received dental and oral care when experiencing dental and oral problems is still relatively low, which is only 31.1%. Therefore, the motivation of each

individual to make regular visits to the dentist needs to be improved.²

Oral and dental diseases are currently ranked 8th out of the top ten outpatient diseases. In addition, the Household Health Survey (SKRT) reported by the Indonesian Ministry of National Health in 2013 showed that 70% of people suffered from dental caries and gingivitis (gum inflammation) and in adults, 73% suffered from dental caries.³

The prevalence of caries in developing countries is still quite high. Caries can cause discomfort to the patient, and lead to pain in the tooth. This condition will have a negative impact on the patient.⁴ For a student, this will interfere with the learning process, so that students cannot achieve again.

On March 11, 2020, the World Health Organization (WHO) declared the Corona virus disease outbreak, COVID-19 as a global pandemic. This status was declared due to positive cases outside China which increased thirteen times in 114 countries with a total death toll at that time reaching 4,291 people. WHO stated that so far there has never been a pandemic triggered by the corona virus and at the same time, there has never been a pandemic that can be controlled. On that basis, WHO is asking countries to take urgent and aggressive action to prevent and overcome the spread of the COVID-19 virus.⁵ Coronavirus disease 2019 (COVID-19) is a new type of disease that has never been identified before in humans. The virus that causes COVID-19 is called Sars-CoV-2. Based on scientific evidence, COVID-19 can be transmitted from human to human through coughing/sneezing droplets, The people most at risk of contracting this disease are people who are in close contact with COVID-19 patients including those who care for COVID-19 patients.⁶

Result

The results in this study can be seen in the following tables

Table 1 Frequency Distribution of Respondents Based on Gender

Gender	Frequency	Percentage
Female	67	90.5
Male	7	9.5
Total amount	74	100

The COVID-19 pandemic means that people are unable to visit the dentist as regularly as they did before the pandemic. The Executive Board of the Indonesian Dental Association (PB PDGI) has issued a circular letter on dental service guidelines during the COVID-19 virus pandemic. One of the things stated in the letter is to delay action without symptomatic complaints.⁷

Teledentistry has been developed to facilitate online consultation to patients.⁸ However, it is not yet known whether all students at the Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) University are aware of and utilize these facilities. Based on this background, this study aims to explain the understanding of students at the Faculty of Dentistry, Prof. Dr. Moestopo (Beragama) University towards dental care during the COVID-19 Pandemic.

Material and Methods

This research was conducted at the Faculty of Dentistry, Prof. Dr. Moestopo University (Religious) in August-September 2022. Determination of the number of subjects in this study was determined by total sample, snowball method. The number of subjects used were 74.

The type of research used is descriptive research, with a cross sectional research design. The subjects in this study were students of the Faculty of Dentistry, Prof. Dr. Moestopo University (Religious) who had filled out a questionnaire.

This study used the informed consent sheet and questionnaire in the form of Google form. The first data analysis is data entry, then descriptive analysis is carried out which is presented in tabular form.

The results of the study in table 1 show data obtained from 74 research respondents who have participated, consisting of 90.5% (67 respondents)

are female and as many as 9.5% (7 respondents) are male.

Table 2. Frequency Distribution of Respondents Based on the Use of Mouthwash During the COVID-19 Pandemic

Use mouthwash regularly during the pandemic	Frequency	Percentage
Yes	35	47.3
No	39	52.7
Total amount	74	100

The results of the study in Table 2 show data obtained from 74 research respondents who have participated, consisting of 47.3% (35 respondents)

who routinely use mouthwash during the pandemic and as many as 52.7% (39 respondents) who do not use mouthwash.

Table 3 Frequency Distribution of Respondents Based on Frequently Used Mouthwash during the COVID-19 Pandemic

Frequently used mouthwash during the pandemic	Frequency	Percentage
Non-alcoholic mouthwash	20	27
Alcohol mouthwash	17	23
Herbal mouthwash	15	20.3
Not using mouthwash	22	29.7
Total amount	74	100

The results of the study in table 3 show data obtained from 74 research respondents who have participated, consisting of 27% (20 respondents) who use non-alcohol mouthwash, 23% (17

respondents) who use alcohol mouthwash and as many as 20.3% (15 respondents) use herbal mouthwash. The remaining 29.7% (22 respondents) did not use mouthwash.

Table 4 Frequency Distribution of Respondents Based on Reasons for Using Mouthwash

Reasons for using mouthwash	Frequency	Percentage
Prevents bad breath	20	27
To avoid bacterial buildup	18	24.3
For a fresher mouth	14	18.9
Not using mouthwash	22	29.7
Total amount	74	100

The results of the study in table 4 show data obtained from 74 research respondents who have participated, consisting of 27% (20 respondents), using mouthwash for reasons to prevent bad breath. Respondents as much as 24.3% (18

respondents) on the grounds that there is no accumulation of bacteria in the oral cavity. Another reason is to make the mouth feel fresher as many as 18.9% (14 respondents). Meanwhile, 29.7% (22 respondents) did not use mouthwash.

Table 5 Frequency Distribution of Respondents Based on Visits to the Dentist During the COVID-19 Pandemic

Visiting the dentist during the pandemic	Frequency	Percentage
Yes	49	66.2
No	25	33.8
Total amount	74	100

The research results in table 5 show data obtained from 74 research respondents who have participated, consisting of 66.2% (49 respondents)

who have visited the dentist during the pandemic. Respondents who never visited a dentist during the pandemic were 33.8% (25 respondents).

Table 6 Frequency Distribution of Respondents Based on Reasons for Visiting Dentists during the COVID-19 Pandemic

Reasons to visit the dentist during the pandemic	Frequency	Percentage
Dental pain	8	10.8
Routine control (once every 6 months)	4	5.4
Scaling	14	18.9
Orthodontic appliance control	20	27
Tooth filling	1	1.4
Endodontic treatment	1	1.4
Tooth extraction	1	1.4
Never visited a dentist during the pandemic	25	33.8
Total amount	74	100

The research results in table 6 show data obtained from 74 research respondents who have participated, consisting of 1.4% (1 respondent) who visited the dentist during the pandemic for reasons of filling, nerve treatment and tooth extraction. Respondents who came for dental pain were 10.8% (8 respondents). Respondents who

came for routine control were 5.4% (4 respondents), while for scaling were 18.9% (14 respondents). The most common reason for coming to the dentist was for orthodontic appliance control as many as 27% (20 respondents).

Table 7 Frequency Distribution of Respondents Based on Whether They Fear Coronavirus Exposure When Visiting a Dentist During the COVID-19 Pandemic

Are you afraid of being exposed to the Coronavirus when visiting the dentist during the Pandemic?	Frequency	Percentage
Yes	33	44.6
No	26	35.1
Never visited a dentist during the pandemic	15	20.3
Total amount	74	100

The research results in table 7 show data obtained from 74 research respondents who have participated, consisting of 44.6% (33 respondents) who feel afraid of being exposed to the Corona

virus when visiting a dentist during a pandemic. Respondents who did not feel afraid were 35.1% (26 respondents).

Table 8.Frequency Distribution of Respondents Based on Choosing a Dentist to Visit during the COVID-19 Pandemic

Choosing a Dentist to Visit During the COVID-19 Pandemic	Frequency	Percentage
Choosing a clinic that prioritizes sterilization of equipment and rooms	21	28.4
Choosing a regular dentist	29	39.2
Never visited a dentist during the pandemic	24	32.4
Total amount	74	100

The research results in table 8 show data obtained from 74 research respondents who have participated, consisting of 28.4% (21 respondents) who choose clinics that prioritize sterilization of

tools and rooms when visiting dentists during a pandemic. Respondents who chose their usual dentist were 39.2% (29 respondents).

Table 9 Frequency Distribution of Respondents Based on Actions Taken by Dentists during the COVID-19 Pandemic

Actions taken by dentists during the pandemic	Frequency	Percentage
Non-emergency cases	27	36.5
Emergency cases	15	20.3
Do not know	32	43.2
Total amount	74	100

The research results in table 9 show data obtained from 74 research respondents who have participated, consisting of 36.5% (27 respondents) who answered that the actions taken by dentists during the pandemic were non-emergency cases. Respondents who answered that dentists took

emergency action during the pandemic were 20.3% (15 respondents). Respondents who did not know what actions dentists took during the pandemic had the largest percentage, namely 43.2% (32 respondents).

Table 10 Frequency Distribution of Respondents Based on What They Did When Experiencing Dental Pain During the COVID-19 Pandemic

Things to do when experiencing dental pain during the pandemic	Frequency	Percentage
Buying over-the-counter medications (without a dentist's prescription)	12	16.2
Visit the dentist and ask for a prescription	36	48.6
Never visited a dentist during the pandemic	26	35.1
Total amount	74	100

The research results in table10 show data obtained from 74 research respondents who have participated, consisting of 16.2% (12 respondents) who chose to buy over-the-counter drugs (without

a dentist's prescription) during the pandemic. Respondents who chose to come to the dentist and ask for a prescription were 48.6% (36 respondents).

Table 11.Frequency Distribution of Respondents Based on Knowing How to Seek Treatment or Consult a Dentist by Phone or Online Since the COVID-19 Pandemic

Knowing how to seek treatment or consult a dentist by phone or online since the pandemic	Frequency	Percentage
Yes	55	74,3
No	19	25,7
Total amount	74	100

The research results in table 11 show data obtained from 74 research respondents who have participated, consisting of 74.3% (55 respondents) who know how to seek treatment or consult a

dentist by telephone or online since the pandemic. Respondents who did not know about this were 25.7% (19 respondents).

Table 12 Frequency Distribution of Respondents Based on Knowledge that They Can Get Prescription Medicine After Consulting a Dentist by Phone or Online Since the COVID-19 Pandemic

Knowing that you can get prescription drugs after consulting with a dentist by phone or online since the COVID-19 pandemic	Frequency	Percentage
Yes	59	79,7
No	15	20,3
Total amount	62	100

The results of the study in table 12 show data obtained from 74 research respondents who have participated, consisting of 79.7% (59 respondents) knowing that they can get prescription drugs after

consulting with dentists by telephone or online since the pandemic. Respondents who did not know about this were 20.3% (15 respondents).

Table 13. Frequency Distribution of Respondents Based on the Need for Patients to Know the Management of Dental Care in the New Normal Order

It is necessary for patients to know the management of dental care in the new normal order	Frequency	Percentage
Yes	72	97,3
No	2	2,7
Total amount	74	100

The results of the study in table 13 show data obtained from 74 research respondents who have participated, consisting of 97.3% (72 respondents) think that it is necessary for patients to know dental care procedures in the new normal order. Respondents who considered it unnecessary were 2.7% (2 respondents).

Discussion

Circular Letter No.2776 / PB PDGI / III-3 / 2020 concerning Guidelines for Dentistry Services during the COVID-19 Virus Pandemic, clearly

describes information regarding the management of preventing transmission of COVID-19 in dental practice rooms. WHO also stipulates the prevention or limitation of the spread of COVID-19 with standard precautions.⁷

Related to the COVID-19 pandemic, this study was conducted to find out how the Faculty of Dentistry students at Prof. Dr. Moestopo University (Beragama) understand dental care during the COVID-19 pandemic. The COVID-19 pandemic has caused various changes. Indonesia has tried to control and break the COVID-19 chain

by making and implementing applicable regulations. However, in dealing with COVID-19, the role of various sectors is needed, including the government, health workers and also public awareness to be able to heed the appeals of the government and health workers and increase self-awareness to prevent the spread of the COVID-19 virus.⁶

Based on the results of the research that has been conducted, it appears that the most respondents involved in this study are female, as many as 90.5%. This is because the majority of Faculty of Dentistry students are female.

Respondents who routinely used mouthwash during the pandemic were 47.3%. More respondents did not use mouthwash during this pandemic. The type of mouthwash that is often used by respondents is non-alcoholic mouthwash, 27%. The most common reason for using mouthwash is to prevent bad breath, which is 27%. Based on research by Ferdina et al in 2022, it is said that the use of mouthwash during a pandemic will be able to reduce the risk of COVID-19 transmission. The most effective Povidone iodine concentration is 1% for 15 seconds and can reduce viral activity by 99.99%.⁹

Respondents who continued to visit the dentist during the pandemic were 66.2%. The most common reason why respondents continue to visit the dentist during a pandemic is because of orthodontic appliance control. Based on research conducted by Wahyuni et al in 2019, it is said that orthodontic treatment takes a long time to complete. Regular visits for orthodontic appliance control must be adhered to with an interval of about 4-6 weeks. Patients must show high motivation and seriousness in treatment, in order to get maximum results. Failures that occur during orthodontic treatment, generally occur because patients are not orderly in conducting routine controls.¹⁰ Therefore, during the pandemic, patients should still visit the dentist for orthodontic appliance control.

Respondents who felt afraid when visiting the dentist were 44.6%, while respondents who never

visited the dentist during the pandemic were 20.3%. During the pandemic, respondents prefer to visit their usual dentist, 39.2%, rather than choosing a clinic that prioritizes sterilization. This shows that respondents are more concerned with the convenience of seeing a familiar dentist, rather than a clinic with good sterilization equipment. Respondents' knowledge regarding cases worked by dentists during the pandemic has also been asked in this research questionnaire. The majority of respondents were students of the Faculty of Dentistry who were in the first semester, as many as 71.6%. Therefore, knowledge of what actions are taken by dentists during a pandemic does not seem appropriate, because many respondents answered non-emergency cases as much as 36.5%, while 43.2% stated that they did not know to answer this question. Cases performed by dentists during a pandemic based on Circular Letter No.2776 / PB PDGI / III-3 / 2020 concerning Guidelines for Dentistry Services During the COVID-19 Virus Pandemic, it is said that dentists are asked to postpone action in the absence of complaints, which means that only emergency cases are carried out during this pandemic.⁷

What respondents did when experiencing dental pain, 48.6% chose to visit the dentist and ask for a prescription, while 16.2% chose to immediately buy over-the-counter drugs (without a doctor's prescription). Respondents who chose not to visit the dentist were 35.1%. Respondents who have knowledge of how to seek treatment or consult a dentist by telephone or teledentistry since the pandemic are 74.3%. The remaining 25.7% were respondents who did not know about it. Respondents who know that they can get prescription drugs after consulting with a dentist by phone or online since the pandemic are 79.7%. The American Dental Association (ADA) describes teledentistry as "the use of telehealth systems and methodologies in dentistry", which includes a wide range of technologies and measures to deliver medical, health and educational services virtually.¹¹ The use of teledentistry is considered very effective and

efficient, so as to reduce direct contact and prevent the spread of COVID-19.¹²

Respondents who felt it was necessary for patients to know the management of dental care in the new normal order as much as 97.3%. This is in line with Desi PS's research in 2021 which states that in the current new normal era, it is highly recommended to develop a high standard teledentistry application and service management system to support services in the field of dentistry. Teledentistry as a medium for transition and collaboration between conventional systems and digital systems is considered to be able to support and greatly assist patients in overcoming oral health problems during the COVID-19 pandemic.¹²

Conclusions and Suggestions

Based on the results of the research that has been conducted, it can be concluded that the understanding of dental students towards dental care during the COVID-19 pandemic is quite good. This can be seen from the results of the study which show that the majority of respondents know how to seek treatment or consult a dentist by telephone or online since the pandemic through teledentistry. One of the efforts to prevent the spread of COVID-19 is through the use of teledentistry which is considered very effective and efficient.

Although the existence of teledentistry cannot fully replace dental practice, it is hoped that the public can sort out what cases are urgent enough to be examined by a dentist immediately. Non-emergency dental cases are expected to be postponed until the pandemic is over. Dental care should still be done at home so that the condition of the teeth and mouth can be maintained optimally.

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No. : 722/D/FKG/VI/2023

Dekan Fakultas Kedokteran Gigi – Universitas Prof. Dr. Moestopo (Beragama) menerangkan bahwa dosen tersebut dibawah ini :

1. Poetry Oktanauli, drg., M.Si
2. Pinka Taher, drg., M.Biomed
3. Margaretha Herawati, drg., M.Biomed
4. Azyyati Patricia Zikir, drg., M.Sc
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Untuk membuat karya ilmiah berupa penelitian dengan judul:

“Dental Faculty Students Understanding of Dental Care During the COVID-19 Pandemic”

Demikian surat keterangan ini untuk dapat diketahui.

Jakarta, 5 Juni 2023

Mengetahui,
Dekan,
ub.

Wakil Dekan Bid. Adm. & Keuangan

Umi Ghoni Tjiptoningsih, drg., Sp. Perio