KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS JENDERAL SOEDIRMAN
Jalan Prof. Dr. Bunyamin No. 708 Kotak Pos 115 – Purwokerto 53122
Telepon (0281) 635292,635293, 638795 - Fax. (0281) 631737, 631802
Laman : www.unsoed.ac.id

KEPUTUSAN REKTOR UNIVERSITAS JENDERAL SOEDIRMAN
NOMOR 1068/UN23/HK.02/2021

TENTANG

PELAKSANA PENELITIAN SKEMA RISET DASAR UNIVERSITAS JENDERAL SOEDIRMAN TAHUN ANGGARAN 2021

REKTOR UNIVERSITAS JENDERAL SOEDIRMAN,

Menimbang
a. bahwa perguruan tinggi mempunyai tugas menyelenggarakan pendidikan, penelitian, dan pengabdian kepada masyarakat;
b. bahwa untuk memenuhi kualitas dan kuantitas penelitian di Universitas Jenderal Soedirman, maka perlu dilakukan penelitian secara kompetitif dan memenuhi standar mutu;
c. bahwa untuk itu perlu diangkat pelaksana Penelitian Skema Riset Dasar Unsoed dengan Keputusan Rektor Universitas Jenderal Soedirman;

Mengingat :
1. Undang-undang RI Nomor 5 Tahun 2014 tentang Aparatur Sipil Negara;
2. Undang-undang RI Nomor 20 Tahun 2003 tentang Sistem Pendidikan Nasional;
3. Undang-undang RI Nomor 12 Tahun 2012 tentang Pendidikan Tinggi;
4. Peraturan Pemerintah RI Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan Tinggi dan Pengelolaan Perguruan Tinggi;
5. Keputusan Presiden Republik Indonesia Nomor 195 Tahun 1963 jo Kept. Menteri PTIP No. 153 Tahun 1963 tentang Pendirian Unsoed;
6. Peraturan Menteri Riset, Teknologi, dan Pendidikan Tinggi Nomor 28 Tahun 2017 tanggal 10 April 2017 tentang Statuta Universitas Jenderal Soedirman;
7. Peraturan Menteri Riset, Teknologi, dan Pendidikan Tinggi RI Nomor 10 Tahun 2016 jo Nomor 23 Tahun 2017 tentang Organisasi dan Tata Kerja Unsoed;
8. Peraturan Menteri Keuangan RI Nomor 112/PMK.02/2020 tentang Standar Biaya Keluaran (SBK) Tahun Anggaran 2021;
9. Keputusan Menteri Riset, Teknologi, dan Pendidikan Tinggi RI Nomor 222/M/KPT.KP/ 2018 tanggal 30 April 2018 tentang Pemberhentian dan Pengangkatan Rektor Universitas Jenderal Soedirman Periode Tahun 2018 – 2022 ;

MEMUTUSKAN:

Menetapkan	:	KEPUTUSAN REKTOR UNIVERSITAS JENDERAL SOEDIRMAN TENTANG PELAKSANA PENELITIAN SKEMA RISET DASAR UNIVERSITAS JENDERAL SOEDIRMAN TAHUN ANGGARAN 2021.
KESATU	:	Menugaskan kepada dosen yang namanya tercantum dalam lampiran keputusan ini untuk melaksanakan penelitian yang judul, biaya, waktu dan tugas dalam penelitian masing-masing termaktub dalam keputusan ini selanjutnya disebut "Peneliti".
KEDUA	:	Dalam melaksanakan tugasnya "Peneliti" membuat laporan dan bertanggung jawab kepada Rektor Universitas Jenderal Soedirman.
KETIGA	:	Penelitian dilakukan selama 9 (Sembilan) bulan mulai 15 Maret 2021 sampai dengan 30 November 2021.
KEEMPAT	:	Biaya pelaksanaan penelitian dibebankan kepada DIPA BLU LPPM Unsoed.
KELIMA	:	Keputusan ini mulai berlaku pada tanggal ditetapkan.

Ditetapkan di Purwokerto
Pada Tanggal, 5 Mei 2021

REKTOR,

SUWARTO

-lppm/unsoed/dyt

LAMPIRAN
KEPUTUSAN REKTOR
UNIVERSITAS JENDERAL SOEDIRMAN
NOMOR 1068/UN23/HK.02/2021
TANGGAL 5 MEI 2021
TENTANG
PELAKSANA PENELITIAN SKEMA RISET DASAR
UNIVERSITAS JENDERAL SOEDIRMAN TAHUN ANGGARAN 2021

No	Personalia	Jabatan	Judul Penelitian	Dana Disetujui (Rp)	Fakultas
1	A. Haris Budi Widodo Rifda Naufalin Meylida Ichsyani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Potensi Ekstrak Etanol Tanaman Kecombrang Nicolaia Speciosa Horan Sebagai Antibakteri Kariogenik Dan Periodontopatogen Penyebab Karies Gigi dan Periodontitis	36,800,000	Kedokteran
2	Abdul Rohman Mintarti	Ketua Peneliti Anggota Peneliti I	Sintesa Dalam Dialektika Fiqh Ibadah Pada Era Disrupsi, Persepsi Para Tokoh Kelompok Keagamaan Di Kabupaten Banyumas	32,750,000	Ilmu Sosial dan Ilmu Politik
3	Abdullah Nur Aziz Hartono Sugito	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Optimasi Desalinator Tenaga Matahari Menggunakan Bahan Beton Campuran Pasir Besi	36,000,000	MIPA
4	Ade Irma Anggraeni Pretisila Kartika Putri Kalisa Tri Nawarini	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Push-Pull Factors Dalam Memetakan Tingkat Partisipasi Wisatawan Pada Objek Pendakian Gunung Slamet	33,250,000	Ekonomi dan Bisnis
5	Adi Candra Sachrul Iswahyudi Siswandi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kerentanan Air Tanah Kota Purwokerto Terhadap Polutan Nitrat Berdasarkan Metode Drastic	34,000,000	Teknik
6	Adi Wiratno Taufik Hidayat	Ketua Peneliti Anggota Peneliti I	Model Pemberdayaan UMKM dalam Meningkatkan Daya Saing dengan Customer Profitability dan Product Profitability	33,000,000	Ekonomi dan Bisnis
7	Afifah Viva Ratih Bening Ati Fajar Wahyu Pribadi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Efektivitas Ekstrak Seledri (*Apium graveolens L.*) Sebagai *Antiinflamasi, Antifibrosis,* dan *Antiapoptosis Pada Tikus Model Chronic* Kidney Disease	36,000,000	Kedokteran

-lppm/unsoed/dyt

8	Agoeng Noegroho Shinta Prastyanti	Ketua Peneliti Anggota Peneliti I	Strategi Komunikasi Pemberdayaan Petani Melalui Koperasi Gula Kelapa Pada Era Digital Media	34,000,000	Ilmu Sosial dan Ilmu Politik
9	Agung Prabowo Agus Sugandha Slamet Riyadi Supriyanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pembentukan Premi Asuransi Pertanian Yang Mempertimbangkan Pengaruh Iklim	34,750,000	MIPA
10	Agus Arifin Rakhmat Priyono	Ketua Peneliti Anggota Peneliti I	Determinan Willingness To Pay dan Eksternalitas Pengembangan Jalur Strategis Tiga Serangkai Destinasi Wisata di Kabupaten Purbalingga	34,000,000	Ekonomi dan Bisnis
11	Agus Faturokhman Agung Praptapa Bambang Setyobudi Irianto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Faktor Academic Dishonesty Pada Pelaksanaan Kelas Daring: Pendekatan Dark Triad Personality dan Faktor Situasional	33,500,000	Ekonomi Dan Bisnis
12	Agus Hery Susanto Murni Dwiati	Ketua Peneliti Anggota Peneliti I	Genetika Populasi Alang-alang (Imperata cylindrica (L.) Raeusch.) di Paparan Sunda berdasarkan Dua Marka Genom Kloroplas	35,250,000	Biologi
13	Agus Sugandha Niken Larasati Erna Wardani Agustini Tripena Br Surbakti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Masalah eksistensi dan ketunggalan solusi Persamaan Black Scholes Fraksional Yang dimodifikasi beserta terapannya dalam analisis harga Opsi	31,500,000	MIPA
14	Agustinah Setyaningrum Bahrun Pambudi Yuwono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Profil Volatile Fatty Acid, Gula Darah, Dan Nitrogen Balance Kambing Sapera Jantan Dengan Pakan Indigofera Sp Pada Kondisi Bahan Yang Berbeda	27,750,000	Peternakan
15	Aldila Dinanti Rasyid Mei Mustafa Dadang Iskandar Nur Chasanah	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Sistem Informasi Keuangan Pada Umkm Banyumas Sebagai Sarana Pendukung Pengelolaan Usaha	35,000,000	Ekonomi dan Bisnis
16	Alice Yuniaty Hexa Apriliana Hidayah Nurtjahjo Dwi Sasongko	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Profil Ekspresi Gen Terkait Ketahanan Salinitas pada Beberapa Varietas Kedelai: 1. Gen GsPRX9 Penyandi Peroxidase	30,250,000	Biologi
17	Alpha Nadeira Mandamdari Pudji Hastuti Purwantini Adwi Herry Koesoema Elyanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Dampak Pandemi Covid – 19 Terhadap Ketahanan Pangan Rumah Tangga Petani Di Kabupaten Banyumas	32,750,000	Pertanian

-lppm/unsoed/dyt

18	Amin Fatoni Hartiwi Diastuti Dadan Hermawan	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Biosensor Glukosa Menggunakan Cryogel Komposit Algitat-Nanopartikel Nikel Ferit	32,750,000	MIPA
19	Amin Fatoni Dian Windy Dwiasi R. Wahyu Widanarto Mekar Dwi Anggraeni	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Potensi Arang Aktif Tempurung Kelapa Lokal untuk Biosensor Glukosa	35,250,000	MIPA
20	Ani Widyastuti Erie Kolya Nasution	Ketua Peneliti Anggota Peneliti I	Keragaman Vegetasi Reparian dan Kontribusinya terhadap Konservasi Waduk Cacaban Kabupaten Tegal Jawa Tengah	32,750,000	Biologi
21	Ardhini Rin Maharning Erwin Riyanto Ardli Romanus Edy Prabowo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Komposisi dan Variasi Spasial Nematoda di Kawasan Mangrove Segara Anakan	35,750,000	Biologi
22	Ardiansyah Asna Mustofa Afik Hardanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Otomatisasi dan Monitoring Iklim Mikro Pada Plant Factory Dengan Menggunakan Mikrokontroler, Mikrokomputer Dan Teknologi Internet Of Things (IoT)	35,500,000	Pertanian
23	Arif Setyo Upoyo Akhyarul Anam Agis Taufik	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Group Education Online Untuk Pencegahan Uncontrolled Hipertensi Sebagai Model Edukasi Di Era Pandemi	25,250,000	Ilmu Kesehatan
24	Aris Mumpuni Daniel Joko Wahyono Adi Amurwanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan biokomposit berbasis misclium jamur koprofil pelapuk putih dan bahan lignoselulosik	36,500,000	Biologi
25	Arizal Mutahir Muhammad Taufiqurrohman Wiman Rizkidarajat Masrukin	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pengalaman Kelas Menengah Indonesia Dalam Menghadapi Pandemi Covid-19: Suatu Refleksi Teoretis	34,000,000	Ilmu Sosial Dan Ilmu Politik
26	Arnie Widyaningrum Dani Nugroho Saputro Agus Maryoto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kajian Pengaruh Pergeseran Baut Pada Pelaksanaan Pekerjaan Sambungan Pada Konstruksi Baja Dengan Analisis Numerikal dan Eksperimental (Tahun 1)	27,250,000	Teknik
27	Ary Yunanto Refius Pradipta Setyanto	Ketua Peneliti Anggota Peneliti I	Model Manajemen Keuangan Bisnis Untuk Daya Saing Ukm Di Kalangan Industri Kreatif Di Masa Pandemi Covid-19	29,500,000	Ekonomi dan Bisnis

28	Atyanti Isworo Nuriya Yunita Sari Annas Sumeru	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Strategi Efektif Untuk Meningkatkan Kepatuhan Perawatan Diri Pasien Diabetes di Banyumas	37,500,000	Ilmu Kesehatan
29	Ayusia Sabhita Kusuma Nuriyeni Kartika Bintarsari Nurlaela	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisa Resiliensi Perempuan Terhadap Kerusakan Lingkungan Dampak Eksplorasi Pltpb Baturraden Dalam Perspektif Gender dan Environment Security: Studi Kecamatan Cilongok, Banyumas	35,250,000	Ilmu Sosial dan Ilmu Politik
30	Azis Wisnu Widhi Nugraha Winasis Ari Fadli	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Sistem Manajemen Listrik Rumah Tangga Berbasis IoT untuk Efisiensi Energi	29,750,000	Teknik
31	Bambang Hariyadi Eri Wahyuningsih Colti Sistiarani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Determinan dan Perbedaan Proporsi Tipe Premenstruasi Sindrom : Tipe Tunggal (A,D,C,H) dan Tipe Kombinasi (A-D, C-H)	36,500,000	Ilmu Kesehatan
32	Bambang Suswanto Ahmad Sabiq Toto Sugito Bambang Kuncoro	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Model Community Development dalam Pendidikan Anak Berbasis Green-School di Pedesaan	29,750,000	Ilmu Sosial dan Ilmu Politik
33	Bilalodin Aris Haryadi Kartika Sari1	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Optimasi Desain Beam Shaping Assembly Double Layer Sebagai Sumber Neutron Epitermal Pada Radioterapi BNCT	35,000,000	Mipa
34	Budi Aji Siti Harwanti Arih Diyaning Intiasari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Perluasan kepesertaan BPJS Kesehatan dan peningkatan akses pelayanan kesehatan bagi pekerja sektor informal dengan pemberdayaan koperasi di era pandemi Covid-19	35,500,000	Ilmu Kesehatan
35	Budi Pratikno Jajang Mashuri	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Power dan Size Hipotesis Parameter Distribusi Geometrik (Diskrit) dan Lognormal (Kontinu)	29,750,000	MIPA
36	Chusmeru Agus Ganjar Runtiko Adhi Iman Sulaiman Tri Nugroho Adi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Strategi Pemberdayaan dalam Penguatan Kelembagaan UMKM dan Pokdarwis untuk Pengembangan Desa Wisata Berbasis Kearifan Lokal	35,000,000	Ilmu Sosial dan Ilmu Politik

37	Chusni Hadiati Usep Muttaqin Nadia Gitya Yulianita	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kondisi Kesahihan (Felicity Condition) Tokoh Nasional Indonesia	31,750,000	Ilmu Budaya
38	Dadan Hermawan Ponco Iswanto Uyi Sulaeman	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Docking Melekul Pada Senyawa Kiral Azole Antifungal Drugs Dengan Cyclodextrin Sebagai Chiral Selector	36,750,000	MIPA
39	Darsono Edy Riwidiharso	Ketua Peneliti Anggota Peneliti I	Design Kotak Lebah Untuk koloni lebah local (Apis Cerana) di Dataran Tinggi	26,750,000	Biologi
40	Devani Laksmi Indyastuti Krisnhoe Rachmi Fitrijati Uswatun Hasanah Sri Lestari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pengaruh Modal Sosial, Fleksibilitas Bisnis, Kelincahan Organisasional, Keproaktifan E Business , Penciptaan Pengetahuan Kolaboratif Pada Perceived Survival Dalam Menghadapi Era Covid-19 Era Pada Umkm	35,000,000	Ekonomi Dan Bisnis
41	Dhadhang Wahyu Kurniawan Dody Novrial Pugud Samodro	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Sediaan Nanopartikel Ekstrak Sambiloto (Andrographis paniculata) Sebagai Terapi Pada Hewan Coba Diabetes Melitus	30,250,000	Ilmu Kesehatan
42	Dian Bhagawati Agus Nuryanto	Ketua Peneliti Anggota Peneliti I	Autentikasi Species Emerita emeritus Complex dari Pesisir Cilacap Berdasarkan Marka Morfologi dan Gen CO1	35,350,000	Biologi
43	Dian Riana Ningsih Anung Riapanitra	Ketua Peneliti Anggota Peneliti I	Nanopartikel Ekstrak Daun Mangga Bacang (Mangifera Feotida L) Dengan Logam Perak Dan Aplikasinya Pada Pembuatan Salep Antibakteri	34,250,000	MIPA
44	Diana Retna Utarini Suci Rahayu Adi Amurwanto	Ketua Peneliti Anggota Peneliti I	Daya Dukung dan Daya Tampung Ekosistem Waduk Wadaslintang Terhadap Pencemaran Limbah Antrophogenik	27,250,000	Biologi
45	Didik Rilastiyo Budi Arfin Deri Listiandi Neva Widanita	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Relevansi Indeks Massa Tubuh (Imt) Dengan Tingkat Cedera Atlet Tenis Lapangan Di Kabupaten Banyumas	26,250,000	Ilmu Kesehatan
46	Dindy Darmawati Putri Irene Kartika Eka Wijayanti Lutfi Zulkifli Indah Setiawati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Kajian Kinerja dan Keberlanjutan Usahatani Kapulaga di Lahan Perhutani Kabupaten Banyumas	34,250,000	Pertanian

47	Dini Ryandini Meyta Pratiwi Sri Martina Wiraswati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Mekanisme Antibakteri Streptomyces Sp. Sa4034 Berdasarkan Keberadaan Gen Nonribosomal Peptide Synthetase (NRPS) dan Kebocoran Asam Nukleat	32,250,000	Biologi
48	Dwi Pangastuti Marhaeni S. Bekti Istiyanton Nana Sutikna Bambang Widodo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Strategi Komunikasi Pemberdayaan Desa untuk Mencegah Berkembangnya Faham Radikal	32,500,000	Ilmu Sosial dan Ilmu Politik
49	Dyah Fitri Kusharyati Oedjijono Taruna Dwi Satwika	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Karakterisasi Dan Peningkatan Produksi Bakteriosin Isolat Lg71 Asal Sedimen Mangrove Pantai Logending Sebagai Agen Biopreservasi	31,750,000	Biologi
50	Dyah Raina Purwaningsih Tri Murniati Tri Wahyu Setiawan Prasetyoningsih	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Audio Recording: Alternatif Media Pembelajaran Online Ramah Kuota	25,250,000	Ilmu Budaya
51	Dyah Susanti Totok Agung Dwi Haryanto Retno Setyawati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Karakterisasi Sensori, Bioavailabilitas dan Mutu Protein Beras Inpago Unsoed Protani dan Galur-Galur Padi Protein Tinggi Unsoed	22,750,000	Pertanian
52	Edi Santoso Dwi Pangastuti Marhaeni Dian Bestari Santi Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Potensi Hyperlocal Journalism Melalui Pemanfaatan Media Sosial untuk Pemberdayaan Masyarakat Desa	32,750,000	Ilmu Sosial dan Ilmu Politik
53	Edy Riwidiharso Rokhmani Endang Ariyani Setyowati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Keragaman dan Prevalensi Ekto dan Endoparasit pada Ayam di Dataran Tinggi	31,250,000	Biologi
54	Edy Suyanto Soetji Lestari fransiskus Xaverius Wardiyono Tri Rini Widyastuti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III Anggota Peneliti IV	Model Interaksi Perilaku Dalam Menghadapi Virus Corona (Covid-19) Dan Strategi Menjaga Kesehatan Mental Dan Sosial Berbasis Kearifan Lokal Masyarakat Kabupaten Banyumas	35,500,000	Ilmu Sosial dan Ilmu Politik
55	Edy Yani Lucky Prayoga	Ketua Peneliti Anggota Peneliti I	Dampak Batasan Hutan Terhadap Keanekaragaman Tumbuhan Bawah dan Implikasinya untuk Penyusunan Model Konservasi	28,750,000	Biologi

56	Efka Aris Rimbawanto Bambang Hartoyo Sri Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Isolasi – Karakteristik Fisikokimia dan Nilai Biologis Konsentrat Protein Asal Hijuan Sebagai Alternatif Pengganti Soy Bean Meal Bahan Pakan Ayam Sumber Protein Nabati	34,750,000	Peternakan
57	Eko Bayu Purwasatriya Gentur Waluyo Akhmad Khahlil Gibran	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Kualitas Batupasir Formasi Halang Untuk Pengembangan Sistem Minyak dan Gas Bumi Di Cekungan Banyumas	27,750,000	Teknik
58	Eko Kurniawan Imam Suhardi Dian Bayu Firmansyah Ambhita Dhyaningrum	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Upaya Preservasi Budaya Melalui Penerjemahan "Babad Banyumas: Serat Babad Banyumas Mertadiredjan"	27,750,000	Ilmu Budaya
59	Elis Puspitasari Fatmah Siti Djawahir	Ketua Peneliti Anggota Peneliti I	Adaptasi Tatanan Kehidupan Baru di Pesantren: Studi 3 Pesantren di Masa Pandemi Covid-19	34,250,000	Ilmu Sosial dan Ilmu Politik
60	Elly Proklamasiningsih Kamsinah Pudji Widodo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Perubahan Biokimia Penentu Kualitas Buah Cabai dan Tomat sebagai Respon terhadap Asam Humat	35,250,000	Biologi
61	Elly Tuti Winarni Kusbiyanto Agus Nuryanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Keanekaragaman Jenis Larva Krustasea di Bagian Tengah dan Bagian Barat Segara Anakan berdasarkan Identifikasi Molekuler	36,500,000	Biologi
62	Eming Sudiana Edy Yani	Ketua Peneliti Anggota Peneliti I	Keanekaragaman dan Endemisme Pepohonan Penyusun Hutan Alam Pegunungan Rendah Lereng Timur Gunung Slamet Serta Model Konservasinya	35,250,000	Biologi
63	Endang Sri Purwati Aulidya Nurul Habibah Ratna Stia Dewi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Cekaman Abiotik Limbah Batik Terhadap Tanaman Hias Aglonema dan Ikan Mujair, Serta Pembenahannya Menggunakan Pupuk Hayati Mikoriza	34,750,000	Biologi
64	Endang Triyanto Lita Heni Kusumawardani Koernia Nanda Pratama	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Multilevel Approach To Community Health Model Terhadap Perilaku Kesehatan Reproduksi Remaja	31,750,000	Ilmu Kesehatan
65	Eny Rokhminarsi Wilis Cahyani Darini Sri Utami Begananda	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Efektivitas Mikoriza dan Trichoderma Spesifik Lokasi Lahan Marjinal Sebagai Pupuk Hayati Pada Tanaman Kubis Bunga	29,250,000	Pertanian

66	Erminawati Wuryatmo Akhmad Sidik Rifda Naufalin	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Formulasi Kacang tanah (Arachis Hypogae) Powder dengan Metode Fermentasi dan Germinasi sebagai Bahan Pangan Fungsional.	30,250,000	Pertanian
67	Ervina Mela Laeli Budiarti Mustaufik Dian Novitasari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Strategi Pengembangan Produk Pangan Oleh-Oleh Daerah	34,000,000	Pertanian
68	Erwin Riyanto Ardli Romanus Edy Prabowo	Ketua Peneliti Anggota Peneliti I	Asesmen Resiliensi Ekosistem Mangrove Hasil Restorasi dengan Indikator Organisme Asosiasi Makrobenthos	36,250,000	Biologi
69	Erwita Nurdiyanto Sri Nani Hari Yanti Gita Anggria Resticka	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Model Pengembangan Bahasa Jawa Banyumas Di Era Modernisasi : Tinjauan Sosiolinguistik	32,750,000	Ilmu Budaya
70	Farida Asriani Hesti Susilawati Gandjar Pamudji	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Metode Pengamatan Retakan Beton Dengan Pengolahan Citra Dan Hybrid Convolusional Neural Network -Support Vector Machine (Cnn-Svm)	35,250,000	Teknik
71	Farida Nur Rachmawati Untung Susilo Diana Retna Utarini Suci Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Aspek Biologi Ikan Sidat (Anguilla bicolor McClelland, 1844) yang Tertangkap Di Perairan Tawar di Wilayah Banyumas dan Cilacap : Acuan dalam Budidaya	33,250,000	Biologi
72	Gandjar Pamudji Farida Asriani Hery Awan Susanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Metode Pembuatan Agregat Ringan Dari Sampah Plastik dan Model Prediksi Kuat Tekan Beton Berbasiskan Jaringan Syaraf Tiruan	31,250,000	Teknik
73	Gita Anggria Resticka Gigih Ariastuti Purwandari Erwita Nurdiyanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Wacana Kritis Pemberitaan Covid-19 Di Banyumas Pada Media Online Harian Radar Banyumas	35,000,000	Ilmu Budaya
74	Gratiana Ekaningsih Wijayanti Atang Eko Setiyono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Kajian Ekspresi Diferensial Osteochilus vittatus Vasa Homolog Dalam Perkembangan Germ line dan Kemampuan Regeneratif jaringan Somatis	30,250,000	Biologi

75	Hana Sorta Basar Ida Simanjuntak	Ketua Peneliti Anggota Peneliti I	Respon Fisiologi dan Performa Pertumbuhan Ikan Lele (Clarias sp.) Terhadap Pemberian Pakan yang Disuplementasi Spirulina platensis dan Chlorella vulgaris	29,250,000	Biologi
76	Hariyadi Rili Windiasih Muhammad Taufiqurrohman Arizal Mutahir	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Agensi dan Konstruksi Perempuan dalam Film-Film Horor Indonesia Kontemporer	27,850,000	Ilmu Sosial dan Ilmu Politik
77	Hartiwi Diastuti Eva Vaulina Ari Asnani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Aktivitas Antimikroba dan Uji Toksisitas Senyawa Bioaktif dari Rimpang Lempuyang Gajah (Zingiber zerumbet)	36,750,000	Mipa
78	Harwoko Nur Amalia Choironi Dyah Fitri Kusharyati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Eksplorasi Senyawa Antikanker dari Jamur Endofit pada Lempuyang Gajah (Zingiber zerumbet): Aplikasi Metode OSMAC (One Strain MAny Compounds) dan Ko-kultur	30,750,000	Ilmu Kesehatan
79	Hary Pudjianto Neni Widayaningsih	Ketua Peneliti Anggota Peneliti I	Determinan Pertumbuhan Ekonomi di Indonesia: Bagaimana Pengaruhnya Terhadap Ketimpangan Pendapatan antar Wilayah di Indonesia Tahun 2015-2019	32,500,000	Ekonomi Dan Bisnis
80	Hendri Restuadhi Ratna Dewi Nanang Martono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Sekolah-Sekolah Alternatif di Purwokerto dan Sekitarnya: Interpretasi Terhadap Konsep Pendidikan Pembebasan Paolo Freire Melalui Kearifan Lokal	31,250,000	Ilmu Sosial dan Ilmu Politik
81	Heny Ekowati Masita Wulandari Suryoputri Nialiana Endah Endriastuti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Penggunaan Obat Pada Pasien Covid 19 : Upaya Penanggulangan Covid-19 Berbasis Evidence Based Medicine	32,750,000	Ilmu Kesehatan
82	Herman Sambodo Nunik Kadarwati	Ketua Peneliti Anggota Peneliti I	Analisis Distribusi Modal Manusia: Bagaimana Pengaruhnya Terhadap Pertumbuhan Ekonomi dan Ketimpangan Antar Wilayah di Indonesia Periode 2015-2019	32,250,000	Ekonomi Dan Bisnis
83	Hernayanti Sri Lestari Agatha Sih Piranti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Potensi Tumbuhan Akuatik Sebagai Fitoremidiator Pencemaran Logam Berat Kadmium	30,750,000	Biologi

84	Hery Pratiknyo Trisnowati Budi Ambarningrum Endang Ariyani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Spesies Rayap Dan Tingkat Palatabilitas Pada Jenis Kayu Rumah Semi Permanen Di Kabupaten Banyumas	28,500,000	Biologi
85	Hesti Permata Sari Ibnu Zaki Farida	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Dampak Household Food Security Terhadap Kecukupan Asupan Gizi Makro, Keragaman Pangan, dan Status Gizi Balita Masa Pemulihan Pandemi Covid-19	29,250,000	Ilmu Kesehatan
86	Hidayat Sulistyo Rifah Ediati Muhammad Syaiful Aliim	Ketua Peneliti Anggota Peneliti I	Profiling Sirkulasi Ekspresi Mrna Untuk Memonitor Progresi Dan Treatment Pada Kanker Nasofaring Sebagai Upaya Pendekata Di Era Individualized Therapy	31,750,000	Kedokteran
87	Icuk Rangga Bawono Karina Odia Julialevi Ayu Anggraeni Sibarani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Insentif Pajak untuk UMKM dalam Menghadapi Pandemi COVID - 19	33,750,000	Ekonomi dan Bisnis
88	Idah Hamidah Januar Aziz Zaenurrohman Muhammad Syaiful Aliim	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Fungsi, Nilai Budaya Dan Kearifan Lokal Dalam Novel Ronggeng Dukuh Paruk dan Memoirs of A Geisha : Kajian Antropologi Linguistik	35,250,000	Ilmu Budaya
89	Ike Sitoresmi Mulyo Purbowati Dindy Darmawati Putri Ruth Feti Rahayuniati Suyono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Sebaran Mutu Gula Cair Dengan Penambahan Rosela (Hibiscus Sabdariffa) Untuk Memperpanjang Umur Simpan Berdasarkan Sumber Nira Dan Energi	29,250,000	Pertanian
90	Iman Budisantoso Dwi Nugroho Wibowo Nurtjahjo Dwi Sasongko	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Polietilin Glikol (PEG) Pada Beberapa Varietas Kedelai Terhadap Variabel Fisiologis, Dalam Upaya Mendapatkan Tanaman Tahan Kekeringan	30,750,000	Biologi
91	Imron Rosyadi Rifah Ediati Muhammad Syaiful Aliim	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Perancangan Sistem Klasifikasi Varietas Dan Mutu Beras Konsumsi Berdasarkan Standar Sni Dengan Metode Deep Learning	30,250,000	Teknik
92	Indah Widyarini Imron Rosyadi Djeimy Kusnaman Bambang Sumanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Feasibility Study Usahatani Kopi Lereng Gunung Slamet dalam Upaya Penetapan Indikasi Geografis Kopi Gunung Slamet	35,250,000	Pertanian

93	Indra Permana Jati Januar Aziz Zaenurrohman Muhammad Syaiful Aliimn	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengurangan Risiko Bencana Longsor dengan Pemanfaatan Disaster Management Information System Berbasis WebGIS di Kecamatan Karangjambu, Kabupaten Purbalingga	35,250,000	Teknik
94	Irene Kartika Eka Wijayanti Dindy Darmawati Putri Ruth Feti Rahayuniati Suyono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Model Peningkatan Kinerja Usahatani Stroberi Berbasis Perilaku Kewirausahaan Dan Kompetensi Teknis Budidaya Di Kabupaten Purbalingga	34,250,000	Pertanian
95	Isti Handayani Budi Sustriawan Aisyah Tri Septiana	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Ph Dan Lama Ekstraksi Terhadap Karakteristik Fisik, Kimia, Tingkat Toksisitas Serta Aktivitas Antibakteri Ekstrak Annato	30,250,000	Pertanian
96	Iwan Purnawan Eman Sutrisna Arif Imam Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Dukungan Spiritual Berbasis Aplikasi Smartphone Untuk Mengatasi Kecemasan Pada Perawat Unit Gawat Darurat Di Masa Pandemik Covid-19	35,000,000	Ilmu Kesehatan
97	Jajang Budi Pratikno Mashuri	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kajian Model Conditional Autoregressive Bym (Car-Bym) Dan Implementasinya Dalam Disease Mapping Penyakit Dbd Di Kabupaten Ciamis	29,750,000	MIPA
98	Juni Safitri Muljowati Arif Rahman Hikam	Ketua Peneliti Anggota Peneliti I	Sensitivitas Fungi Fitopatogen Bunga Matahari (Helianthus annuus, L) Penyebab Penyakit Nekrotik Terhadap Beberapa Fungisida Sintetis	28,750,000	Biologi
99	Juwarno Siti Samiyarsih Muachiroh Abbas	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Morfologi, Anatomi, Fisiologi Dan Produksi Kedelai [Glycine max (L.) Merr.] Tahan Salinitas Yang Ditanam Langsung Di Pesisir Pantai Cilacap	27,750,000	Biologi
100	Kamsinah Rochmatino Triani Hardiyati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Penambahan Zat Pengatur Tumbuh Terhadap Pertumbuhan Bibit Tanaman Strawberry (Fagraria X Anannasa Durch) Yang Berasal Dari Stolon Di Dataran Tinggi	32,750,000	Biologi
101	Pepita Haryanti Karseno Tri Yanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Isolasi Dan Identifikasi Komponen Aktif Pada Sabut Dan Tempurung Kelapa Dan Pengujian Aktivitas Antimikrobanya	36,750,000	Pertanian

102	Krismiwati Muatip Muhammad Nuskhi Lis Safitri Hermin Purwaningsih	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Membangun Kemandirian Pangan Hewani Berbasis Pakan Lokal Di Komunitas Bonokeling Kabupaten Banyumas Dan Cilacap	34,000,000	Peternakan
103	Kuntarto Muhamad Riza Chamadi Indah Puspitasari Rizki Utami	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pemetaan Wisata Religi di Kabupaten Banyumas	34,500,000	Ilmu Budaya
104	Lalita Melasarianti Octaria Putri Nurharyani Etin Pujihastuti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Bahan Ajar Mata Kuliah Berbicara Dengan Metode Student Facilitator And Explaining Di Jurusan Pendidikan Bahasa Universitas Jenderal Soedirman	32,500,000	Ilmu Budaya
105	Lasmedi Afuan Nurul Hidayat Bangun Wijayanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Ekspansi Query Menggunakan WordNet dan Ontologi Untuk Meningkatkan Relevansi Dokumen Pada Temu Balik Informasi	35,250,000	Teknik
106	Lina Rifda Naufalin Jaryono Tohir	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Model Edukasi Literasi Keuangan Digital Pada Umkm Batik Di Kabupaten Banyumas	34,000,000	Ekonomi dan Bisnis
107	Agus Suroto Loekas Soesanto Ni Wayan Anik Leana	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Screening Metabolit Sekunder Jamur Entomopatogen Pengendali Spodoptera frugiperda J.E. Smith Pada Tanaman Jagung	37.250000	Pertanian
108	Lutfatul Latifah Nina Setiawati Aprilia Kartikasari Hari Siswantoro	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pengembangan Aplikasi Follow Up Care Berbasis Android pada Ibu Postpartum di Rumah Sakit Prof. Dr. Margono Soekarjo Purwokerto	35,250,000	Ilmu Kesehatan
109	M. Riyanton Uki Hares Yulianti Bivit Anggoro Prasetyo Nugroho	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Aplikasi Kamus Digital Register Bahasa Pengiyongan Berbasis Android (Perspektif Sosiolinguistik)	35,250,000	Ilmu Budaya
110	Masrukin Fatmah Siti Djawahir Rin Rostikawati Tri Sugiarto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Rekonstruksi teori Pandemi, Sindemi dan mitigasi bencana covid19 (Study sosiologis tentang pendekatan baru dalam pandemic covid19 melalui pendekatan Syndemi dalam rangka mitigasi bencana covid 19 covid19 pada masyarakat marginal di Kabupaten	33,950,000	Ilmu Sosial dan Ilmu Politik

111	Rahmi Setiyani Amin Faton Desiyani Nani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Aplikasi Berbasis Android Terintegrasi Sebagai Upaya Deteksi Dini Anemia pada Ibu Hamil di Masa Pandemi Covid-19	32,750,000	Ilmu Kesehatan
112	Mintarti Rahmad Santosa	Ketua Peneliti Anggota Peneliti I	Pendidikan Moral Di Sekolah Pada Era Pandemi Covid-19 (Menyoal Relevansi Teori Pendidikan Moral Emile Durkheim)	35,250,000	Ilmu Sosial dan Ilmu Politik
113	Mite Setiansah Wiwik Novianti	Ketua Peneliti Anggota Peneliti I	Analisis Potensi Guru Sebagai Agen Pendidikan Literasi Digital di Sekolah	35,250,000	Ilmu Sosial Dan Ilmu Politik
114	Moh. Husein Sastranegara Anastasia Endang Pulungsari	Ketua Peneliti Anggota Peneliti I	Kekayaan species Ordo Decapoda (Crustacea) yang diobservasi dan diduga sepanjang Sungai Berem di lereng selatan Gunung Slamet	36,750,000	Biologi
115	Moh. Nanang Himawan Kusuma Topo Suhartoyo	Ketua Peneliti Anggota Peneliti I	Tele-SPORTS berbasis realtime feedback sebagai metode pembelajaran alternatif dalam mengatasi permasalahan kesehatan, kebugaran dan psikosomatis mahasiswa Penjas UNSOED di era pembelajaran daring Covid-19	34,000,000	Ilmu Kesehatan
116	Muhamad Salman Fareza Triyadi Hendra Wijaya Sarmoko	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Penelusuran Mekanisme Aksi Senyawa Turunan Flavonoid Sebagai Inhibitor Tirosin Kinase	36,250,000	Ilmu Kesehatan
117	Muhammad Fauzan Riris Ardhanariswari Tenang Haryanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Model Rekrutmen Hakim Dalam Menjamin Terwujudnya Independensi Kekuasaan Kehakiman Di Indonesia	35,750,000	Hukum
118	Muhammad Rifan Sisno Joko Maryanto Suwardi Hana Hanifa	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III Anggota Peneliti IV	Pengujian Pupuk Npk-Sr Dengan Berbagai Grade Dan Ukuran Zeolit Alam Untuk Meningkatkan Efisiensi Nitrogen Serta Hasil Padi Sawah	26,250,000	Pertanian
119	Mukti Trenggono Nunung Nurhayati Maria Dyah Nur Meinita	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Peran Potensial Klimatologi Maritim Dan Telekoneksi Laut-Atmosfer Dalam Pengembangan Pesisir Selatan Jawa Tengah Sebagai Sentra Garam	36,250,000	Perikanan dan Ilmu Kelautan

120	Mustasyfa Thabib Kariadi Agus Sapto Nugroho Memet Sudaryanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Model Penilaian Portofolio Dalam Pembelajaran Bahasa Inggris Model Inkuiri Sebagai Usaha Peningkatan Hasil Belajar Mahasiswa Di Unsoed (Classroom Action Research Perspective)	35,250,000	Ilmu Budaya
121	Nanang Martono Jarot Santoso Elis Puspitasari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Habitus Siswa Miskin menurut Perspektif Guru di Sekolah	27,750,000	Ilmu Sosial dan Ilmu Politik
122	Nia Ulfa Martha Nila Mega Marahayu Vera Krisnawati Novita Pri Andini	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pengembangan Pembelajaran Berbasis Proyek Mata Kuliah Penulisan Bahan Ajar Dan Penerapan Hasil Pembelajarannya Pada Mata Pelajaran Bahasa Indonesia Di Sekolah	32,250,000	Ilmu Budaya
123	Nor Intang Setyo Hermanto Gathot Heri Sudibyo Agus Maryoto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Studi Penggunaan Waterproofing Sistem Integral dan Coating Terhadap Karakteristik Beton Kedap Air	31,500,000	Teknik
124	Norman Arie Prayogo Asrul Sahri Purnama Sukardi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Efek kisspeptin (k-10) pada aktivitas reproduksi (poros pineal–hipothalamus-gonad) ikan nilem (Osteochillus vittatus) dalam mendukung pembenihan intensif	36,250,000	Perikanan dan Ilmu Kelautan
125	Novita Puspasari Meutia Karunia Dewi Nur Choirul Afif	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengukuran Kinerja Pada Koperasi: Perspektif Conventional Vs Emancipatory Accounting	37,500,000	Ekonomi dan Bisnis
126	Nuning Setyaningrum Sugiharto Priyo Susatyo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Bioreproduksi dan Potensi Genetik Ikan Gabus (Channa striata Bloch) di Wilayah Kabupaten Banyumas dan Cilacap: Sebagai Upaya Domestikasi dan Budidaya Secara Berkelanjutan	30,250,000	Biologi
127	Nunung Noor Hidayat Imbang Haryoko Pambudi Yuwono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Potensi Wilayah Basis Dan Strategi Pengembangan Ternak Kerbau Di Provinsi Jawa Tengah	29,750,000	Peternakan
128	Nur Hidayat Eko Hendarto Agustinah Setyaningrum	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Formula Kompos Unggul Kotoran Sapi Perah Diperkaya Jenis Dan Dosis Pupuk Buatan Guna Peningkatan Produktivitas Rumput Unggul	30,250,000	Peternakan

129	Nur Ulfah Endo Dardjito Siti Harwanti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Kelelahan Kerja Guru Sekolah Dasar Di Kecamatan Purwokerto Utara Akibat Pembelajaran Daring Pada Masa Pandemi Covid 19	36,250,000	Ilmu Kesehatan
130	Okti Herliana Ahmad Fauzi Rostaman	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Eksplorasi Dan Uji Potensi Jamur Rizhosfer Bawang Merah Sebagai Bioremediator Logam Berat Timbal Dan Kadmium	26,250,000	Pertanian
131	Petrus Hary Tjahja Soedibyo Sri Marnani Muslih Ren Fitriadi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Penentuan Jenis Pakan Untuk Merangsang Kecerahan Warna , Pertumbuhan Dan Perkembangan Ikan Guppi (Poecilia reticulata, Peters)	36,750,000	Perikanan dan Ilmu Kelautan
132	Poppy Arsil Dian Novitasari Rumpoko Wicaksono Hety Handayani Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Aplikasi Analytical Hierarchy Process Untuk Prioritas Strategi Pengembangan Halal Center: Tinjauan Perspekstif UMKM	30,250,000	Pertanian
133	Priswanto Hari Prasetijo Widhiatmoko Herry Purnomo Daru Tri Nugroho	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Kajian Implementasi Fuzzy Inference System Untuk Optimalisasi Solar Power Plant On Grid System	29,750,000	Teknik
134	Prita Sari Dewi Ida Widiyawati Kartika Ferrawati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Karakterisasi Morfologi dan Fisiologi serta Studi Genetik Plasma Nutfah Padi sebagai Upaya Perakitan Varietas Padi Unggul Padi Toleran Suhu Tinggi dan Perubahan Iklim	37,000,000	Pertanian
135	Priyo Susatyo Titi Chasanah Nuning Setyaningrum	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Teknik Preservasi Kepala Hewan Donor Sebagai Penyedia Hormon Gonadotrophin Alami Untuk Memicu Pemijahan Ikan Budidaya: Tinjauan Histofisiologi Berbasis Bioreproduksi	35,750,000	Biologi
136	Probo Hardini Gito Sugiyanto Eva Wahyu Indriyati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Lokasi Permukiman Terhadap Perilaku Berlalu Lintas Perempuan Di Kabupaten Purbalingga	33,000,000	Teknik
137	Pudji Widodo Elly Proklamasiningsih Titi Chasanah	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Dinamika Karakteristik Jambu Bol (Syzygium malaccense)	31,750,000	Biologi

138	Puji Lestari Umi Pratiwi Bambang Setyobudi Irianto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Penggunaan Informasi Akuntansi Dalam Penilaian Kinerja Manajerial Dan Dampaknya Pada Pencegahan Perilaku Disfungsional: Moderasi Tata Kelola Dan Persepsi Etis (Studi Pada BPR Di Karesidenan Banyumas)	35,200,000	Ekonomi Dan Bisnis
139	Puji Lestari Irmanto Suyata	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Isolasi Protease Bacillus subtilis Sebagai Biokatalis Hidrolisis Protein Susu Kambing Etawa Berpotensi Antioksidan	30,250,000	MIPA
140	Purwanto Ni Wayan Anik Leana Teguh Widiatmoko Eka Oktaviani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Halotolerant Diazotrophic Bacteria Sebagai Alternatif Sumber N Dalam Mendukung Produksi Padi Di Lahan Sawah Salin	34,750,000	Pertanian
141	Purwati Zusfahair Dian Riana Ningsih	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Fraksinasi Ekstrak Kulit Nanas (Ananas comosus L (MERR)) Dan Aplikasinya Pada Pembuatan Sabun Cuci Tangan Cair (Hand Soap) Sebagai Antibakteri	35,250,000	MIPA
142	Raden Farzand Abdullatif Sugito Hartono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Aerodinamika Pada Rancangan Turbin Savonius Dengan *Computational Fluid Dynamics*	33,750,000	MIPA
143	Ratna Satriani Endang Sriningsih Budi Dharmawan	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Identifikasi Kondisi Dan Strategi Peningkatan Nilai Tukar Petani (Ntp) Untuk Meningkatkan Kesejahteraan Petani Padi Di Kabupaten Banyumas	32,500,000	Pertanian
144	Ratno Purnomo Retno Kurniasih Siti Zulaikha Wulandari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Teori Iklim Keadilan Distributif Berbasis Target Similarity Model: Analisis Hierarchical Linear Model	33,500,000	Ekonomi dan Bisnis
145	Rawuh Edy Priyono Ali Rokhman Imam Santosa Sri Pangestuti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Loyalitas Keluarga Warga Banyumas Dalam Penggunaan Bahasa Lokal Penginyongan Di Kehidupan Sehari-Hari	33,750,000	Ilmu Sosial Dan Ilmu Politik
146	Rehana Yovita Puri Subardjo Eka Prasasti Nur Rachmani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Aktivitas Fagositosis Makrofag Turunan Metoksi Calkon dari Kulit Buah Jeruk Lemon (Citrus limon (L) Burm f) dan Hasil Sintesis	30,250,000	Ilmu Kesehatan

147	Ridlwan Kamaluddin Lita Heni Kusumawardani Siswandi Eva Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Sistem Penanggulangan Gawat Darurat Terpadu Berbasis Pedesaan Sebagai Upaya Pengurangan Risiko Bencana Berbasis Komunitas (PRBBK) di Kabupaten Banyumas	37,750,000	Ilmu Kesehatan
148	Rifqi Festiawan Indra Jati Kusuma Ngadiman Rohman Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti II	Analisis Komponen Technological Pedagogical Content Knowledge (Tpack) Pada Pembelajaran Berbasis E-Learning di Era Pandemi Covid-19 Se-Karesidenan Banyumas	34,000,000	Ilmu Kesehatan
149	Rin Rostikawati Muslihudin Nalfaridas Baharuddin	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pencegahan Perilaku Korupsi Di Kalangan Mahasiswa	22,750,000	Ilmu Sosial dan Ilmu Politik
150	Rizki Februansyah Ririn Kurnia Trisnawati Mia Fitria Agustina Dian Adiarti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Literasi Sastra bagi Mahasiswa Baru di Masa Pandemi COVID-19 Melalui Project-Based Learning	31,750,000	Ilmu Budaya
151	Rochmatino Lucky Prayoga	Ketua Peneliti Anggota Peneliti I	Pengaruh Penambahan Zat Pengatur Tumbuh Terhadap Pertumbuhan Dan Jumlah Bunga Pada Tanaman Hias Tagetess sp	29,750,000	Biologi
152	Romanus Edy Prabowo Erwin Riyanto Ardli Ardhini Rin Maharning	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Deteksi dan Identifikasi Asosiasi Organisme Laut Laguna Segara Anakan Menggunakan Pendekatan Sekuensing Metabarkoding DNA Lingkungan Perairan	27,750,000	Biologi
153	Rose Dewi Bintang Marhaeni Tjahjo Winanto Florensius Eko Dwi Haryono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Mass production Fitoplankton Dunaliella salina dan Chlorella vulgaris dengan Optimalisasi Intensitas cahaya : Sumber Karotenoid	22,750,000	Perikanan dan Ilmu Kelautan
154	Rosi Widarawati Budi Prakoso Bambang Siswo Susilo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Optimalisasi Pengembangan Tanaman Aren (Arenga pinnata (Wurmb.) Merr. dengan Pemanfaatan Metabolit Sekunder Berbasis Organik pada Ekofisologi Lingkungan	22,750,000	Pertanian
155	Roy Andreas Mukti Trenggono Rizqi Rizaldi Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Studi mengenai Submarine Groundwater Discharge (SGD) sebagai potensi nutrisi untuk Biota Laut di Pantai Selatan Jawa Tengah	35,250,000	MIPA

156	S. Bekti Istiyanto Wisnu Widjanarko Christophorus Herutomo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Internet Desa: Antara Inovasi Teknologi Dan Dampak Negatif Bagi Masyarakat Desa (Studi Kasus Pemahaman Literasi Media Di Desa Melung Kabupaten Banyumas)	33,500,000	Ilmu Sosial dan Ilmu Politik
157	Santi Nur Handayani Irmanto Suyata	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Sintesis Senyawa 2-hidroksi Fenilkaliks[4]Pirogalolarena dan Pemanfaatannya Sebagai Adsorben ion Logam Cr (III), Pb(II) Dan Cd(II)	27,750,000	MIPA
158	Saparso Arief Sudarmaji Muhammad Bachtiar Musthafa	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Ekofisologi Tanaman Sayuran Dalam Antisipasi Perubahan Iklim Di Lahan Pasir Pantai	37,500,000	Pertanian
159	Sapto Nugroho Hadi A.H. Syaeful Anwar Ahadiyat Yugi Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Karakterisasi Bakteri Potensi PGPR dan Biodegradator Pestisida dan Logam Berat Asal Perakaran Bawang Merah Kabupaten Brebes	34,750,000	Pertanian
160	Sehah Urip Nurwijayanto Prabowo Sukmaji Anom Raharjo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pemanfaatan Data Anomali Gravitasi Citra Satelit Sebagai Data Utama Riset Geofisika Untuk Mitigasi Bencana	27,750,000	MIPA
161	Senny Widyaningsih Moch. Chasani Undri Rastuti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Isolasi Senyawa Antikanker Dari Fraksi Etil Asetat Ekstrak Metanol Daging Buah Ketapang (Terminalia catappa)	34,150,000	MIPA
162	Setiyowati Rahardjo Erna Kusuma Wati Aisyah Aprilicicilliana Aryani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analisis Determinan Stunting Pada Balita Wilayah Pedesaan Dan Perkotaan Sebagai Upaya Perbaikan Gizi 1000 Hari Pertama Kehidupan Di Kabupaten Banyumas	31,750,000	Ilmu Kesehatan
163	Sidik Awaludin Galih Noor Alivian	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengaruh Model e-Titens (Electronic-Tindak Lanjut Tensi Berbasis Smartphone) Terhadap Skor Pengetahuan Pencegahan Penyakit Jantung Koroner Di Kecamatan Purwokerto Timur	34,250,000	Ilmu Kesehatan
164	Siti Junawaroh Farida Nuryantiningsih Ashari Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Sikap Bahasa Masyarakat Banyumas Dan Pengaruhnya Bagi Pemertahanan Bahasa Banyumasan: Kajian Sosiolinguistik	34,000,000	Ilmu Budaya

165	Siti Rukayah W. Lestari	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kajian Strategi Reproduktif Ikan Baceman Mystus Nemurus DI Waduk Pb. Soedirman Banjarnegara : Upaya Konservasi Species Indigenous	31,250,000	Biologi
166	Siti Samiyarsih Juwarnon Wiwik Herawati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Seleksi dan Perbaikan Varietas Padi Hitam Lokal (Oryza sativa L. japonica) Brebes Melalui Induksi Mutasi Radiasi Gamma Cobalt 60.	30,750,000	Biologi
167	Slamet Santoso S.P. Sri Lestari	Ketua Peneliti Anggota Peneliti I	Intensitas Dan Jenis Pestisida Pada Lahan Pefrtanian Dan Pengaruhnya Terhadap Keragaman Serangga Penyerbuk	27,250,000	Biologi
168	Soetji Lestari Joko Santoso Endang Dwi Sulistyoningsih	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pola Kehidupan Tiga Generasi Dalam Satu Atap (Studi Mengenai Peran Keluarga terhadap Keberadaan Lansia Perempuan dalam Extended Family di Kabupaten Banyumas)	32,500,000	Ilmu Sosial Dan Ilmu Politik
169	Sri Maryani Ari Wardayani Bambang Hendriya Guswanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Eksistensi dan Keterbatasan dari operator solusi persamaan fluida model Navier-Lame yang disertai tegangan permukaan (surface tension)	27,250,000	MIPA
170	Sri Mastuti Rahayu Widiyanti Endro Yuwono Nunung Noor Hidayat	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Analisis Allocative Efficiency Menggunakan Fungsi Produksi Cobb-Douglas Usaha Ayam Broiler Pada Pola Pemeliharaan Yang Berbeda	27,250,000	Peternakan
171	Sri Nurlaela Dwi Sarwani Sri Rejeki Dian Anandari Devi Octaviana	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pola Peran Keluarga dalam Pendampingan Pengobatan Penderita TB yang serumah (Studi eksplorasi Di Puskesmas 2 Purwokerto Utara)	35,250,000	Ilmu Kesehatan
172	Sri Sukmaningrum Suhestri Suryaningsih Aswi Andriasari Rofiqoh	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kekayaan Spesies Dan Kelimpahan Ikan Berdasarkan Fase Bulan Di Segara Anakan Cilacap	32,500,000	Biologi
173	Suhestri Suryaningsih Sri Sukmaningrum	Ketua Peneliti Anggota Peneliti I	Performa reproduksi ikan Famili Cyprinidae berbasis kajian morfometri sebagai dasar penyusunan model	32,750,000	Biologi

174	Sulyana Dadan Endang Dwi Sulistyoningsih Rawuh Edy Priyono	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Perubahan Sosial Pada Masyarakat Adat: Transformasi Kearifan Lokal Pada Komunitas Bonokeling Kabupaten Banyumas	37,750,000	Ilmu Sosial Dan Ilmu Politik
175	Sunarto Harwoko Ryandin	Ketua Peneliti Anggota Peneliti I	Isolasi, Karakterisasi, dan Penelusuran Mekanisme Aksi Senyawa Antikanker dari Fungi Endofitik di Kawasan Hutan Mangrove Logending	36,750,000	Ilmu Kesehatan
176	Supriyanto Dyah Retna Puspita Agung Prabowo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Studi Etnografi Penduduk Lanjut Usia Di Provinsi Jawa Tengah	34,250,000	MIPA
177	Suryanto Damairia Hayu Parmasari Endo Dardjito Heryanto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Analisis Faktor-Faktor Yang Berpengaruh Terhadap Kelelahan Kerja Pekerja Home Industri Tahu Di Desa Kalisari Kecamatan Cilongok.	34,000,000	Ilmu Kesehatan
178	Susanto Budi Sulistyo Arief Sudarmaji Purwoko Hari Kuncoro	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Teknik Deteksi Kemurnian Dan Kandungan Kimia Gula Kelapa Kristal Menggunakan Portable Vis-Nir Spectrometer Berbasis Sensor As7265x Dan Machine Learning	30,250,000	Pertanian
179	Suwandri Santi Nur Handayani Muhamad Salman Fareza	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Kandidat Obat Antijamur dari Senyawa Aktif Konjugat Asam Sinamat-Calkon: Sintesisi dan Uji Aktivitas	35,000,000	MIPA
180	Tedi Sudrajat Nurani Ajeng Tri Utam Rani Hendriana Saryono Hanadi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Integrasi Kebijakan Anti Radikalisme Melalui Kontra Radikalisasi Terhadap Pegawai Aparatur Sipil Negara Di Indonesia	35,500,000	Hukum
181	Tien Setyaningtyas Dwi Kartika Kapti Riyani	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Potensi Kitosan Termodifikasi dalam Pengolahan Limbah	37,000,000	MIPA
182	Titin Widiyastuti Wardhana Suryapratama Sri Rahayu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Karakterisasi Bioaktif Protein Maggot BSF sebagai Sumber Feed additif Potensial Untuk Ternak	31,250,000	Peternakan
183	Topo Suhartoyo Moh. Nanang Himawan Kusuma	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Analysis Index Pembangunan Masyarakat Pedesaan Ditinjau Dari Sport Partcipasitions, Nutritional Status And Gender Di Wilayah Dataran Tinggi Kabupaten Banyumas	35,250,000	Ilmu Kesehatan

184	Tri Lisiani Prihatinah Nur Wakhid Haedah Faradz	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Penerapan Asas Kebebasan Berkontrak Dalam Eksekusi Jaminan Fidusia.	35,250,000	Hukum
185	Tri Rini Widyastuti Fransiskus Xaverius Wardiyono Suksmadi Sutoyo	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Dinasti Politik dalam Pilkades Sedarah (Studi pada Pilkades Serentak Tahun 2019 di Kabupaten Banyumas)	33,750,000	Ilmu Sosial dan Ilmu Politik
186	Tri Wuryaningsih Hendri Restuadhi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Menolak Kekerasan, Melindungi yang Lemah: Penguatan KUA sebagai Upaya untuk Mencegah KDRT di Kabupaten Banyumas	32,250,000	Ilmu Sosial Dan Ilmu Politik
187	Triana Ahdiati Solahuddin Kusumanegara Muhammad Soebiantoro Bowo Sugiarto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Pengembangan Teori tentang Identitas dalam Politik Pariwisata	31,250,000	Ilmu Sosial dan Ilmu Politik
188	Triyani Siti Rahmah Nurshiami Slamet Riyadi	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Teori Spektral Graf: Sifat-sifat Aljabar pada Graf Melalui Bentuk Spektrum Graf–Graf Reguler Berderajat k, k > 2	35,000,000	MIPA
189	Tuti Purwati Prayogo Hadi Sulistio Muhamad Ahsanu	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Nilai Kepahlawanan Dalam Buku Teks Bahasa Inggris Untuk Tingkat Sekolah Menengah Pertama: Sebuah Analisis Wacana Kritis	31,750,000	MIPA
190	Ulfah Nurdiani Rifki Andi Novia Sri Widarni	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Daya Saing dan Kebijakan Pajale (Padi, Jagung, Kedelai) di Kabupaten Banyumas	34,000,000	Pertanian
191	Untung Susilo Eko Setio Wibowo Yulia Sistina	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Aktivitas proteinase, fosfatase alkalin dan ekspresi mRNA Insulin-like Growth Factor-I pada Rasbora lateristriata Blkr.: Respon terhadap status nutrisi	29,750,000	Biologi
192	W. Lestari Erie Kolya Nasution Siti Rukayah	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Jasa Ekosistem Sebagai Koridor Distribusi Insekta Aquatik di Sungai Banjaran, Kabupaten Banyumas	34,000,000	Biologi
193	Waluyo Handoko Andi Ali Said Akbar Bowo Sugiarto	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Gerakan Anti Money Politik Pada Pilkades di Kabupaten Banjarnegara dan Kabupaten Kebumen Tahun 2017-2019	35,250,000	Ilmu Sosial dan Ilmu Politik

194	Wiwiek Fatchurohmah Rizki Amelia Sinensis Khusnul Muflikhah	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Efek Puasa Intermiten Terhadap Berat Badan, Kadar Glukosa, Dan Profil Lipid Pada Pria Dengan Obesitas	37,250,000	Kedokteran
195	Wiwik Herawati Sukarsa	Ketua Peneliti Anggota Peneliti I	Diversitas Annona reticula L Sebagai Upaya Pengembangan Tanaman Lokal Melalui Karakterisasi Morfologi , Faktor Abiotik, Dan Marka Molekuler	31,250,000	Biologi
196	Wiwik Novianti Woro Sri Suharti Mite Setiansah Nuryanti	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II Anggota Peneliti III	Komunikasi Verbal Tentang Seksualitas Dan Kaitannya Dengan Relasi Gender Dalam Perkawinan Pada Budaya Banyumas	33,000,000	Ilmu Sosial dan Ilmu Politik
197	Woro Sri Suharti Etik Wukir Tini Nurtiati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Eksplorasi Tanaman Penghasil Asam Salisilat Sebagai Agen Pengimbas Ketahanan Tanaman Terinfeksi Patogen	32,750,000	Pertanian
198	Wuryatmo Akhmad Sidik Kuswanto Rina Reorita	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Model Penyebaran dan Pengendalian Covid-19 di Jawa Tengah	30,250,000	MIPA
199	Yanto Gito Sugiyanto	Ketua Peneliti Anggota Peneliti I	Peningkatan akurasi peta rawan longsor menggunakan pembelajaran mesin dan sifat mekanis tanah	34,250,000	Teknik
200	Yanto Gito Sugiyanto Probo Hardini	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Pengembangan Model Penentuan Lokasi Rawan Kecelakaan Lalu Lintas (Black Spot)	34,250,000	Teknik
201	Yusmi Nur Wakhidati Mochamad Sugiarto Hudri Aunurohman	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Manajemen Risiko Oleh Perempuan Peternak Dalam Mendukung Keberlanjutan Usaha Sapi Perah Di Kabupaten Banyumas	37,250,000	Peternakan
202	Zusfahair Dian Riana Ningsih Amin Fatoni	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Amobilisasi Urease Dari Biji Kecipir Dan Aplikasinya Untuk Deteksi Logam Berat	34,250,000	MIPA

203	Asrul Sahari Norman Arie Prayogo Nuning Vita Hidayati	Ketua Peneliti Anggota Peneliti I Anggota Peneliti II	Akumulasi Logam Berat di Sungai Tajum Banyumas yang Terpolusi Penambangan Emas dan Efeknya Terhadap Ikan Nilem Serta Pengelolaannya dalam Upaya Konservasi	32.500.000	Perikanan dan Ilmu Kelautan

Ditetapkan di Purwokerto
REKTOR,

SUWARTO

-lppm/unsoed/dyt

Tema: Pangan, gizi, dan kesehatan (food, nutrition, and health)

LAPORAN AKHIR
RISET DASAR UNSOED

Pengembangan Aplikasi Berbasis Android Terintegrasi Sebagai Upaya Deteksi Dini Anemia pada Ibu Hamil di Masa Pandemi Covid-19

OLEH

Rahmi Setiyani, S.Kep.Ns., MN
Mekar Dwi Anggraeni, S.Kep.Ners. M.Kep., Ph.D
Amin Fatoni, S.Si., M.Si., Ph.D.
Dr. Desiyani Nani, S.Kep.Ners. M.Kes

LEMBAGA PENELITIAN DAN PENGABDIAN KEPADA MASYARAKAT UNIVERSITAS JENDERAL SOEDIRMAN
PURWOKERTO
2021

HALAMAN PENGESAHAN
Riset Dasar Unggulan

Judul Penelitian	: Pengembangan Aplikasi Berbasis Android Terintegrasi Sebagai Upaya Deteksi Dini Anemia pada Ibu Hamil di Masa Pandemi Covid-19
Ketua Peneliti	
Nama Lengkap dan Gelar	: Rahmi Setiyani, S.Kep. Ns., MN
Jenis Kelamin	: Perempuan
NIP	: 198403242012122001
Fakultas	: Ilmu-ilmu Kesehatan
Anggota Peneliti	
Jumlah Anggota	: 3 orang
Nama Anggota Peneliti	: 1. Mekar Dwi Anggraeni, M.Kep., Ph.D 2. Amin Fatoni, M.Si., Ph.D 3. Dr. Desiyani Nani, M.Kes
Lama Penelitian	: 8 bulan
Biaya yang Diajukan	: 32.750.000

Purwokerto, 17 Maret 2021

Mengetahui,
Pimpinan Unit

Ketua Peneliti,

Prof. Dr. Saryono S.Kp., M.Kes
NIP 197612102002121001

Rahmi Setiyani, S.Kep., Ns., MN
NIP 198403242012122001

Mengetahui,
Ketua LPPM

Prof. Dr. Rifda Naufalin, MS
NIP 197011211995122001

BAB 1. PENDAHULUAN

1.1 Latar belakang

Angka kematian ibu (AKI) merupakan salah satu indikator penting yang menggambarkan kesejahteraan masyarakat di suatu negara (Kementrian Kesehatan Republik Indonesia [Kemenkes RI], 2015). AKI merujuk pada jumlah kematian ibu selama selama proses kehamilan atau dalam periode 42 hari setelah berakhirnya kehamilan akibat semua sebab yang terkait dengan atau diperberat oleh kehamilan atau penanganannya tetapi bukan disebabkan oleh kecelakaan/cedera (*Word Health Organization* [WHO], 2015). Indonesia masih menghadapi tingginya AKI dimana AKI di Indonesia menduduki peringkat nomer 1 di wilayah ASIA Tenggara (WHO, 2015). Berdasarkan hasil Survei Demografi dan Kesehatan Indonesia (SDKI) tahun 2007 menunjukkan bahwa AKI di Indonesia sebesar 228 per 100.000 kelahiran hidup. Angka ini naik di tahun 2012 yaitu sebesar 359 per 100.000 kelahiran hidup. Angka tersebut masih jauh dari target Millenium Development Goals 2015 yaitu AKI sebanyak 102 per 100.000 kelahiran hidup.

Tingginya AKI di Indonesia disebabkan oleh banyak faktor. Berdasarkan Pusat Data dan Informasi Kementrian Kesehatan Republik Indonesia (Kemenkes RI, 2015), penyebab terbesar kematian ibu selama tahun 2010 - 2013 masih tetap sama yaitu perdarahan. Pada tahun 2013 sebanyak 30,3% ibu meninggal akibat perdarahan selama proses kehamilan, persalinan, dan nifas (Kemenkes RI, 2015). Penyebab utama perdarahan pada masa nifas adalah usia, paritas > 3, riwayat persalinan buruk, persalinan lama, dan anemia (Dina, 2013). Hasil penelitian yang dilakukan oleh Wuryanti (2010) dan Hasanah (2014) menunjukkan bahwa terdapat hubungan yang sangat signifikan antara anemia pada masa kehamilan dengan kejadian perdarahan postpartum di Indonesia. Penelitian yang dilakukan oleh Hikmah dan Yani (2015) juga menunjukkan bahwa semua ibu yang mengalami perdarahan postpartum menderita anemia selama hamil.

Anemia selama kehamilan merupakan masalah kesehatan utama di Indonesia. Riset Kesehatan Dasar (2013) menunjukkan bahwa insidensi anemia pada ibu hamil adalah sebanyak 37,1%. Data ini menunjukkan bahwa lebih dari sepertiga ibu hamil di Indonesia menderita anemia. Selain itu, hasil Survei Demografi dan Kesehatan Indonesia (SDKI, 2012) menunjukkan bahwa 30% ibu hamil yang melakukan pemeriksaan kehamilan di Puskesmas tidak mendapatkan tablet zat besi dan tidak mendapatkan informasi tanda bahaya selama masa kehamilan. Hanya 58% ibu hamil yang dilakukan pemeriksaan dini anemia selama kehamilan (UNICEF Indonesia, 2013). Data tersebut menunjukkan bahwa anemia selama masa kehamilan masih menjadi masalah kesehatan di Indonesia.

Berbagai upaya telah dilakukan oleh Pemerintah Republik Indonesia untuk menurunkan anemia pada ibu hamil. Salah satu upaya yang dilakukan adalah deteksi dini anemia pada saat ibu melakukan pemeriksaan kehamilan trimester 1 dan 3 (Kemenkes RI, 2015). Meskipun demikian, deteksi dini anemia pada ibu hamil di Puskesmas belum optimal dilakukan (Widyawati, Jans, Utomo, Dillen, & Janssen, 2015). Deteksi dini anemia yang dilakukan di Puskesmas saat ini adalah dengan menggunakan metode sahli, kertas lakmus, dan spektofotometri (Wawancara, 14 April 2019). Kelemahan deteksi dini tersebut adalah dibutuhkan alat untuk melakukan pemeriksaan, tenaga ahli yang terlatih, dan tindakan invasif dimana sebagian ibu hamil menolak dilakukan pemeriksaan dengan alasan takut dengan jarum saat diambil sampel darah (Wawancara, 14 April 2019). Hasil wawancara tersebut didukung oleh hasil penelitian yang dilakukan oleh Widyawati, Jans, Utomo, Dillen, dan Janssen (2015) terkait hambatan dalam pelaksanaan manajemen anemia pada ibu hamil yaitu kurangnya kompetensi dan keterampilan klinis yang dimiliki oleh tenaga kesehatan dan kurangnya fasilitas dan tenaga yang ahli untuk melakukan deteksi dini anemia di Puskesmas (Widyawati, Jans, Utomo, Dillen, & Janssen, 2015).

Pemberdayaan ibu hamil dan keluarga dalam upaya deteksi dini anemia pada ibu hamil menjadi sangat penting di Indonesia (Widyawati, Jans, Utomo, Dillen, & Janssen, 2015). Pada daerah dengan wilayah geografis yang sulit untuk dijangkau oleh petugas kesehatan atau memiliki keterbatasan alat kesehatan maka dibutuhkan suatu metode sederhana untuk melakukan deteksi dini anemia pada ibu hamil yang *portable* (mudah dibawa), *real time* (cepat), dan akurat. Telepon seluler memiliki kelebihan mudah dibawa dan digunakan serta memiliki potensi untuk dimanfaatkan di bidang kesehatan. Pada situasi pandemi COVID-19, media online menjadi sarana yang paling dibutuhkan dalam bidang kesehatan untuk meminimalkan kontak antara petugas kesehatan dengan pasien, namun kondisi kehamilan bisa tetap terpantau dengan baik. Monitoring kondisi kesehatan ibu hamil secara berkelanjutan secar online merupakan upaya yang bisa dilakukan oleh tenaga kesehatan dalam upaya menjaga kesehatan ibu hamil selama pandemi COVID-19 (Sousa, de Carvalho, et al., 2020). Pemantauan ibu hamil menggunakan *smartphone* dapat dilakukan oleh tenaga kesehatan untuk menjaga nutrisi, status anemia, kesejahteraan janin, serta kesehatan psikologis ibu hamil agar tetap dalam kondisi sehat ibu dan janin yang dikandung.

Telepon seluler *(smartphone)* berkembang dengan sangat cepat di Indonesia. Telepon seluler memiliki potensi digunakan sebagai alat deteksi dini anemia pada ibu hamil dengan dikombinasikan dengan suatu metode sederhana deteksi anemia yaitu pemeriksaan *conjunctiva palpebra inferior* (Anggraeni & Fatoni, 2017). Pemeriksaan *conjunctiva*

palpebra inferior pada ibu hamil untuk mengkaji status anemia telah lama digunakan oleh tenaga kesehatan (McKenney, James, Murray, & Ashwill, 2009). Kelemahan metode ini adalah subjektivitas yang tinggi dan membutuhkan pengalaman untuk menarik kesimpulan hasil pemeriksaan. Pengembangan alat untuk melakukan deteksi dini anemia yang simpel menggunakan prinsip pemeriksaan *conjunctiva palpebra inferior* akan meningkatkan objektivitas hasil pemeriksaan. Alat tersebut juga bisa digunakan oleh ibu hamil dalam upaya pemberdayaan ibu dan keluarga selama masa kehamilan.

Program aplikasi Denia bisa diunduh di *smartphone* berbasis android melalui playstore (Anggraeni & Fatoni, 2017). Ibu hamil bisa mengirim hasil pemeriksaan kadar Hb menggunakan Denia ke tenaga kesehatan tempat ibu hamil melakukan pemeriksaan kehamilan sehingga ibu hamil tidak harus antri lama di Puskesmas hanya untuk melakukan pemeriksaan kadar Hb. Selain itu juga mengurangi beban kerja tenaga kesehatan, alat, bahan, dan reagen yang digunakan untuk melalkukan pemeriksaan kadar Hb di Puskesmas. Hal ini sesuai dengan program kesehatan Puskesmas yaitu Sistem informasi Kesehatan yang memberikan data kesehatan masyarakat melalui suatu sistem informasi yang berbasis teknologi. Sehingga data kesehatan pasien dapat diakses oleh tenaga kesehatan dengan mudah dan cepat dalam rangka mendukung era revolusi industry 4.0 di bidang kesehatan.

Berdasarkan masalah tersebut diatas maka peneliti tertarik untuk melakukan validasi dan uji efektifitas aplikasi Denia sebagai suatu program yang memberikan data terkait status anemia pada ibu hamil agar bisa digunakan oleh masyarakat dan terintegrasi dengan sistem informasi kesehatan (SIK) yang dimiliki oleh Dinas Kesehatan di Puskesmas.

1.2 Tujuan Penelitian

Tujuan penelitian yang ingin dicapai adalah validasi penggunaan Denia (aplikasi berbasis android) untuk melakukan deteksi dini anemia pada ibu hamil dan integrasi Denia kedalam informasi kesehatan (SIK) yang dimiliki oleh Dinas Kesehatan di Puskesmas.

Tahun 1

a. Melakukan pengkajian kondisi kesehatan masyarakat khususnya ibu hamil di masa pandemic COVID-19.
b. Melakukan eksplorasi kebutuhan ibu hamil, keluarga, kader, tenaga kesehatan, dan sistem pelayanan di Puskesmas untuk meningkatkan pemantauan ibu hamil di masyarakat selama masa pandemic COVID-19.
c. Menyusun daftar isi pengembangan Denia sesuai kebutuhan ibu hamil, keluarga, kader, tenaga kesehatan, dan sistem pelayanan di Puskesmas.

Tahun 2

a. Melakukan uji validitas (content validity, face validity, usability) dan reliabilitas Denia terintegrasi.
b. Melakukan perbaikan sesuai hasil uji validitas dan reliabilitas.
c. Merancang integrasi Denia kedalam SIK di Puskesmas.
d. Melakukan uji efektifitas integrasi Denia kedalam SIK di Puskesmas.
e. Mengetahui status kesehatan ibu, yaitu kadar hemoglobin ibu trimester 3 dan postpartum minggu 1, 2, 3, 4, perdarahan antepartum, onset ASI, metode partus, partus lama, atonia uteri, perdarahan postpartum, tanda subjektif (lemas, pusing, berkunang-kunang), lama penyembuhan luka perineum/post-SC, infeksi luka perineum, dan retensi plasenta.
f. Mengetahui status kesehatan bayi baru lahir, yaitu BB bayi, APGAR score, infeksi neonatal, persalinan prematur, abortus, kelainan kongenital, gangguan pertumbuhan janin dalam rahim, BBLR, infeksi, kematian janin dan ibu.
g. Menganalisa kepuasan ibu hamil, keluarga, kader, dan tenaga kesehatan terhadap penggunaan Denia.

1.3 Urgensi (keutamaan) Penelitian

Angka kematian ibu di Indonesia tertinggi se-ASEAN. Penyebab utama AKI di Indonesia adalah perdarahan. Salah satu faktor yang secara signifikan mempengaruhi perdarahan adalah anemia pada masa kehamilan. Pemerintah Indonesia telah melakukan berbagai upaya untuk melakukan deteksi dini anemia pada ibu hamil namun pelaksanaannya belum optimal karena keterbatasan alat, jumlah tenaga kesehatan dan kondisi pandemi COVID-19. Pemberdayaan ibu hamil untuk melakukan deteksi dini anemia sangat penting. Saat ini sebagian besar penduduk Indonesia memiliki telepon seluler yang berkamera. Pembuatan program berbasis android untuk melakukan deteksi dini anemia pada ibu hamil akan sangat bermanfaat. Saat ini telah tersedia Denia, aplikasi berbasis android untuk melakukan deteksi dini anemia. Diperlukan validasi dan pengembangan aplikasi Denia di berbagai lokasi dan karakteristik responden sesuai kebutuhan tenaga kesehatan dan ibu hamil di situasi saat ini. Selanjutnya pada tahun kedua akan dilakukan perbaikan program berdasarkan hasil uji validasi dan efektifitas program di tahun pertama, merancang integrasi Denia kedalam SIK di Puskesmas, melakukan uji efektifitas integrasi Denia kedalam SIK di Puskesmas, dan menganalisa kepuasan ibu hamil dan tenaga kesehatan terhadap penggunaan Denia. Belum pernah ada aplikasi program berbasis android yang bisa digunakan untuk deteksi dini anemia pada ibu hamil di Indonesia. Hasil penelitian ini dapat digunakan secara luas oleh tenaga kesehatan dalam melakukan upaya pencegahan dan

deteksi dini anemia pada ibu hamil serta terintegrasi kedalam SIK di Puskesmas.

Tabel 1. Rencana Target Capaian Tahunan Riset Dasar Unsoed

No	Jenis Luaran		Indikator capaian TS
1.	Publikasi ilmiah internasional	Internasional	Submitted
2.	Pemakalah dalam temu ilmiah	Internasional	Dilaksanakan
5.	Hak Kekayaan Intelektual	Hak Cipta	Draft
9.	Tingkat Kesiapan Teknologi		2

BAB 2. TINJAUAN PUSTAKA

2.1. Anemia pada ibu hamil

Anemia merupakan masalah yang paling sering ditemukan pada ibu hamil di Indonesia (Kemenkes RI, 2015). Anemia adalah suatu keadaan adanya penurunan kadar hemoglobin, hematokrit dan atau jumlah eritrosit di bawah nilai normal (20-30%) yang mengakibatkan kadar hemoglobin dan hematokrit lebih rendah daripada keadaan tidak hamil. Anemia adalah suatu keadaan dimana kadar hemoglobin lebih rendah dari batas normal untuk kelompok orang yang bersangkutan (WHO, 2001). Anemia selama kehamilan didefinisikan sebagai suatu kondisi dimana kadar hemoglobin (Hb) dalam darah kurang dari 11g/dl (Nurdiati, Sumarni, Suyoko, Hakimi, & Winkvist, 2001). Anemia dalam kehamilan adalah suatu kondisi ibu dengan kadar nilai hemoglobin di bawah 11 gr% pada trimester satu dan tiga, atau kadar nilai hemoglobin kurang dari 10,5gr% pada trimester dua (Syaifuddin, 2002). Berdasarkan klasifikasi WHO tahun 1972 kadar hemoglobin pada ibu hamil dapat di bagi menjadi 3 kategori sebagai berikut: normal (≥ 11gr/dl), anemia ringan (8 – 10 gr/dl), dan anemia berat (<8 gr/dl). Proses kehamilan menyebabkan hemodilusi yang menimbulkan gejala pseudoanemia atau anemia fisiologis. Hemodilusi dimulai pada trimester pertama kehamilan yaitu pada usia kehamilan 12-20 minggu dan hemodilusi maksimal terjadi pada umur kehamilan 20-30 minggu. Akibat hemodilusi terjadi penurunan kadar hemoglobin dalam darah mencapai 10gr/dl.

Penelitian yang dilakukan oleh Brabin, Hakimi, dan Pelletier (2001) menunjukkan bahwa anemia defisiensi besi merupakan jenis anemia yang paling banyak terjadi di Indonesia. Penyebab lain dari anemia pada ibu hamil di Indonesia adalah kekurangan konsumsi vitamin A, asam folat (WHO, 2001; Riset Kesehatan Dasar, 2010), infeksi cacing, HIV, dan malaria (United Nation, 2011; Simkhada, Teijlingen, Porter, & Simkhada, 2008). Anemia juga bisa terjadi jika ibu hamil mengalami kekurangan vitamin A karena vitamin A berperan dalam memobilisasi cadangan besi di dalam tubuh untuk dapat mensintesa hemoglobin. Status vitamin A yang buruk berhubungan dengan perubahan metabolisme besi pada kasus kekurangan besi. Defisiensi vitamin B_{12} hampir sama dengan asam folat yaitu menyebabkan anemia makrositik. Vitamin ini sangat penting dalam pembentukan RBC *(Red Blood Cell)* yaitu sebagai co-enzim untuk mengubah asam folat menjadi bentuk aktif dan juga dipergunakan dalam fungsi normal metabolisme semua sel terutama sel-sel saluran cerna, sumsum tulang, dan jaringan saraf (Almatsier, 2002).

Terdapat faktor lain yang mempengaruhi kejadian anemia pada ibu hamil di Indonesia yaitu pola makan (Putri, Sulistiyono, & Mahmudah, 2015), pengetahuan (Alifah, 2016; Asyirah, 2012), motivasi, dukungan keluarga (Alifah, 2016), jumlah kunjungan pemeriksaan kehamilan (Alifah, 2016; Asyirah, 2012; Putri, Sulistiyono, & Mahmudah, 2015), kepatuhan mengkonsumsi tablet zat besi (Asyirah, 2012; Husnawati, Warsiti, & Sarwinanti, 2015), paritas, usia, status gizi (Fikriana, 2013), status sosial ekonomi (Yanti, Sulistianingsih, & Keisnawati, 2016), jarak antar kehamilan (Manuaba, 2012), dan status pekerjaan ibu (Susilowati, 1993).

2.2. Tanda dan Gejala Anemia pada Ibu Hamil

Gejala yang khas pada anemia jenis ini adalah kuku menjadi rapuh dan menjadi cekung sehingga mirip seperti sendok. Selain itu, juga mengakibatkan permukaan lidah menjadi licin karena adanya peradangan pada sudut mulut dan nyeri pada saat menelan. Gejala anemia pada ibu hamil yaitu cepat lelah, sering pusing, mata berkunang–kunang, malaise, lidah luka, nafsu makan turun, konsentrasi hilang dan nafas pendek jika sudah parah, lemah, pucat dan mudah pingsan walaupun tekanan darah masih dalam batas normal, vertigo, letih, sakit kepala, depresi, dan takhikardi (Prawirohardjo, 2002).

Menurut Proverawati (2007) banyak gejala anemia selama kehamilan, meliputi: merasa lelah atau lemah, kulit pucat progresif, denyut jantung cepat, sesak napas, dan konsentrasi terganggu. Keluhan anemia yang paling umum dijumpai pada masyarakat adalah yang lebih yaitu letih, lesu, lemah, lelah dan lalai. Disamping itu penderita kekurangan zat besi akan menurunkan daya tahan tubuh yang mengakibatkan mudah terkena infeksi.

2.3. Komplikasi akibat anemia selama kehamilan

Anemia menyebabkan penurunan kapasitas darah dalam membawa oksigen. Hal ini mengakibatkan jantung berupaya untuk mengkompensasi kondisi ini dengan cara meningkatkan curah jantung yang menyebabkan peningkatan kerja jantung dan menekan fungsi ventrikel. Anemia yang disertai dengan penyakit penyulit lain, misalnya preeklampsia dapat menyebabkan gagal jantung kongestif pada ibu sehingga meningkatkan resiko kematian pada ibu selama hamil, persalinan dan paska melahirkan (McKenney, James, Murray, & Ashwill, 2009).

Akibat yang akan terjadi pada anemia kehamilan adalah penurunan rasa nyaman, peningkatan resiko infeksi, persalinan prematur, perdarahan antepartum, abortus, kelainan kongenital, gangguan pertumbuhan janin dalam rahim, BBLR, infeksi dan kematian buat janin dan ibu. Komplikasi anemia selama persalinan adalah partus lama karena hipoksia jaringan uterus, kemampuan ibu bersalin kurang, maternal distress, syok, atonia uteri,

perdarahan postpartum, infeksi, dan retensi plasenta. Sedangkan komplikasi anemia pada masa nifas adalah resiko infeksi, subinvolusi uterus, perdarahan postpartum, produksi ASI sedikit, dan dekompensasi kordis. Sedangkan komplikasi anemia pada janin adalah abortus, kematian intrauterin, prematur, BBLR, bayi dengan anemia, cacat bawaan, dan resiko infeksi perinatal (Manuaba, 2012).

Masalah yang potensial timbul akibat anema selama kehamilan adalah oksigen tidak cukup untuk memenuhi kebutuhan persalinan, timbul infeksi akibat anemia seperti infeksi traktus urinarius, pielonefritis, pneumonia, rangkaian krisi yang diakibatkan oleh kebutuhan sel darah merah dan destruksinya, krisis yang disebabkan oleh hipoksia, hipotensi, asidosis, dehidrasi, pengerahan tenaga, pendinginan tiba-tiba, demam tingkat rendah, pseudotoksemia (hipertensi dan proteinuria), tidak terjadi penambahan berat badan dalam jumlah besar, krisis pada tulang, tromboembolisme akibat peningkatan viskositas darah, gagal jantung kongestif, infark paru (hemoptisis, batuk hipertermia, gesekan), hemoragi pasca partum akibat terapi heparin (McKenney, James, Murray, & Ashwill, 2009).

2.4. Penegakkan Diagnosa dan Deteksi Dini Anemia pada Ibu Hamil

Menurut Saifudin (2002), diagnosa anemia pada ibu hamil dapat ditegakkan dengan menggunakan beberapa cara, yaitu:

1. Anamnesa

   Anamnesa dilakukan terhadap ibu hamil terkait keluhan cepat lelah, sering pusing, mata berkunang- kunang, mual muntah, sering pingsan padahal tensi normal.

2. Pemeriksaan fisik

   Tenaga kesehatan melakukan pemeriksaan fisik terhadap ibu hamil yang dicurigai menderita anemia. Jika diperoleh data ibu hamil tampak lemah, kulit pucat, membran mukosa, kuku dan konjungtiva palpebra pucat.

3. Pemeriksaan darah

   Pemeriksaan darah dilakukan minimal 2 kali selama kehamilan yaitu pada trimester I dan III. Hasil pemeriksaan darah menunjang hasil anamnesa dan pemeriksaan fisik yang telah dilakukan sebelumnya untuk memberikan data objektif dan menunjang penegakkan diagnosa anemia pada ibu hamil. Metode untuk menentukan kadar Hb yaitu metode kertas lakmus, metode sahli, dan metode sianmethemoglobin. Pada metode kertas lakmus dan sahli menggunakan kemampuan visual untuk menentukan kadar hemoglobin sedangkan metode sianmethemoglobin memberikan hasil lebih objektif namun membutuhkan alat, bahan, dan ahli yang menguasai metode tersebut.

2.5. Pencegahan Anemia dalam Kehamilan

Pemerintah Republik Indonesia telah melakukan berbagai upaya deteksi dini terhadap anemia pada ibu hamil. Upaya pencegahan dan penanggulangan anemia terbaik dengan mengatasi penyebabnya. upaya yang dapat dilakukan untuk mencegah dan menanggulangi anemia gizi akibat kekurangan komsumsi besi adalah sebagai berikut :

1. Meningkatkan konsumsi zat besi dari makanan

Mengatur pola diet seimbang berdasarkan piramida makanan sehingga kebutuhan makronutrien dan mikronutrien dapat terpenuhi. Mengkonsumsi pangan hewani seperti daging, hati, ikan, telur dan gizi yang cukup dapat mencegah anemia gizi besi. Sayur hijau dan buah- buahan di tambah kacang-kacangan dan padi-padian yang mengandung zat besi. Vitamin C diperlukan untuk meningkatkan penyerapan zat besi di dalam tubuh, peningkatan konsumsi vitamin C sebanyak 20 mg, 50 mg, 100 mg, dan 250 mg dapat memperbesar penyerapan zat besi sebesar 2 kali, 3 kali, 4 kali dan 5 kali. Kurangi konsumsi zat penghambat absorpsi Fe. Teh mengandung tannin akan mengurangi penyerapan zat besi sampai 50%. Bahan makanan lain yang mengandung penghambat absorbsi besi diantaranya kopi, fosvitin dalam kuning telur, protein, fitat, dan fosfat yang banyak terdapat pada serealia, kalsium dan serat dalam bahan makanan.

2. Suplementasi zat besi

Tablet besi yang umum digunakan dalam suplementasi zat besi adalah ferrous sulfat. Senyawa ini tergolong murah, dapat diabsorbsi sampai 20%. Dosis yang digunakan beragam tergantung pada status besi seseorang yang mengkonsumsinya. Ibu hamil yang rawan anemia di beri dosis yang lebih tinggi di banding dengan wanita biasa. Pemberian suplement Fe untuk anemia berat dosisnya adalah 4-6mg/Kg BB/hari dalam 3 dosis terbagi sedangkan pada anemia ringan-sedang : 3 mg/kg BB/hari dalam 3 dosis terbagi. Pada wanita hamil biasanya tablet besi diberikan mulai pada trimester II, berlangsung setiap hari sampai melahirkan. Wanita hamil yang mendapatkan tablet besi tambahan asam folat dan vitamin B12, kadar Hbnya naik lebih tinggi dibandingkan wanita hamil yang mendapat tablet besi saja dalam konsentrasi yang sama.

3. Fortifikasi zat besi

Fortifikasi adalah penambahan suatu jenis gizi kedalam bahan pangan untuk meningkatkan kualitas pangan suatu kelompok masyarakat. Keuntungan fortifikasi diantaranya, dapat ditempatkan pada populasi yang besar dan biasanya relatif murah.

2.5. Analisis Citra Digital

Analisis citra digital (digital image analysis) digital merupakan suatu teknik analisis suatu gambar dan mengkonversikan data yang diperoleh menjadi suatu informasi digital atau data numeric sesuai dengan intensitas warna yang terukur. Beberapa teknik dapat digunakan untuk mendapatkan informasi digital dari suatu gambar seperti mendekomposisi gambar menjadi sistem warna pokok merah, hijau, dan biru. Setiap *pixel* atau unit gambar digital terbentuk dari kombinasi warna tersebut dan dengan suatu bantuan *software* analisis gambar dapat mengukur intensitas komposisi masing-masing gambar tersebut menjadi informasi yang dapat diolah lebih lanjut (Botelho et al., 2014). Teknik lainnya adalah berupa analisis warna gambar dan mengkonversikan menjadi data numerik yang selanjutnya dapat diolah dengan teknik kemometrik menggunakan *software MATLAB®, GNU R®* atau *Scilab®*. Beberapa software analisis gambar lainnya yang lebih mudah aplikasinya adalah *ImageJ®, JustTLC®* dan *Sorbil®* (Abou-Donia et al., 2014).

Salah satu program atau *software* analisis gambar digital yang dapat diakses secara gratis atau *open source* adalah *ImageJ®* yang dapat diperoleh dengan mengakses alamat web *http://rsb.info.nih.gov/ij/download.html*. *ImageJ®* dapat menghasilkan hasil analisis yang lebih baik dibandingkan *software* analisis lainnya. Program ini dikembangkan oleh *National Institutes of Health (NIH), United States Department of Health and Human Services* untuk memproses dan menganalisis gambar-gambar biologis. Program ini dapat diinstal dalam komputer dan aplikasinya mudah untuk digunakan dalam menganalisis suatu gambar digital (Abou-Donia et al., 2014). Aplikasi metode image analysis sudah banyak digunakan dalam kimia analisis diantaranya adalah untuk menganalisis gambar dan mengukur konsentrasi suatu larutan warna makanan serta mengukur metabolit sekunder pada bahan alam (Kohl et al., 2006; Lima et al., 2013) serta berbagai aplikasi kolorimetri lainnya

BAB 3. METODE PENELITIAN

3.1. Waktu dan Lokasi Penelitian

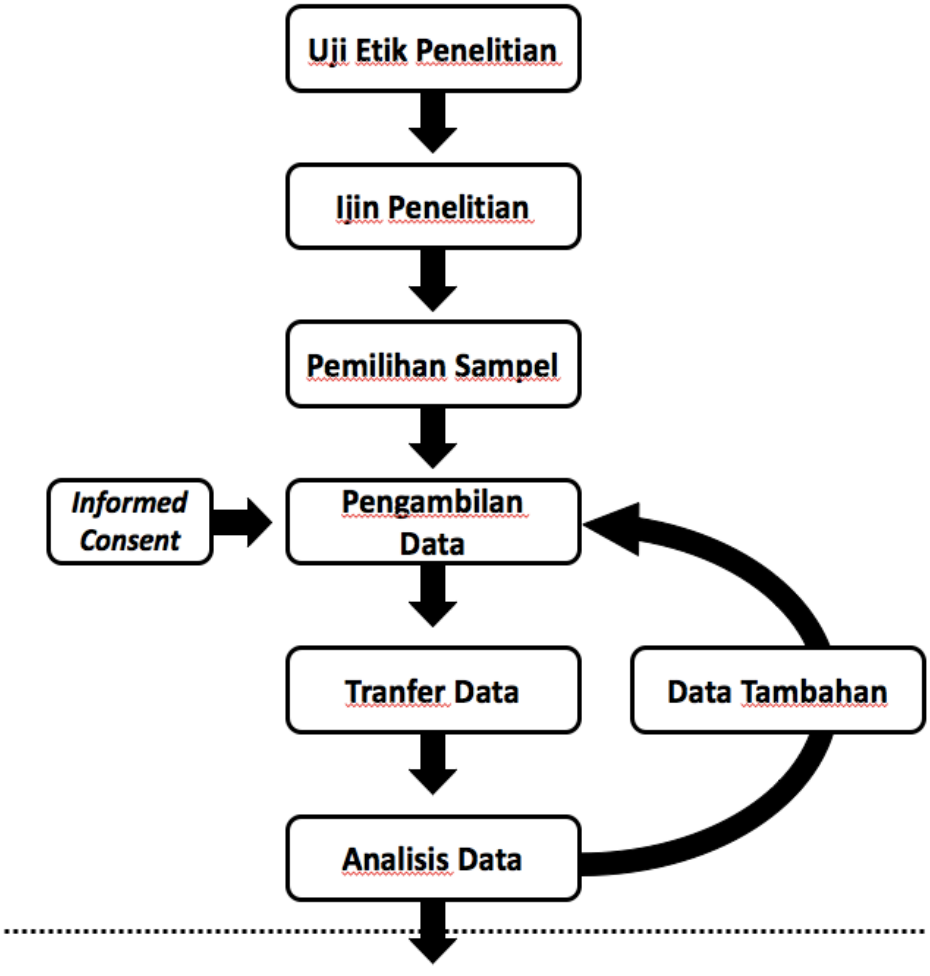
Penelitian ini akan dilaksanakan selama 2 (dua) tahun dengan rencana pada Tahun I diselenggarakan dari bulan Maret hingga Oktober 2021 dan pada Tahun II pada bulan Maret hingga Oktober 2022 di Laboratorium Keperawatan Maternitas, Jurusan Keperawatan FIKES UNSOED, Laboratorium Biokimia, Jurusan Kimia FMIPA UNSOED, dan wilayah kerja Puskesmas di wilayah Kabupaten Banyumas.

3.2. Bahan dan Alat Penelitian

Peralatan dan bahan yang digunakan dalam penelitian ini antara lain: buku referensi, alat tulis, kertas, tinta printer, software Windows, software statistik Prism, alat perekam digital, kamera smartphone, memory card, RAM laptop, dan souvenir responden.

3.3. Rancangan Penelitian

Penelitian ini akan dilaksanakan dalam beberapa tahap, yaitu: uji etik penelitian, ijin penelitian, pemilihan kelompok intervensi dan kelompok control, pengambilan data kadar Hb menggunakan Denia, mengirim data kadar Hb dari Denia ke tenaga kesehatan, pengolahan data, integrasi data kadar Hb dari Denia ke SIK Puskesmas, uji coba integrasi Denia dan SIK Puskesmas, perbaikan software lebih lanjut dan uji coba. Rancangan penelitian untuk Tahun I secara skematis dapat dilihat pada Gambar 2.



Gambar 2. Skema rancangan kerja penelitian

3.4. Prosedur Kerja

Prosedur kerja yang dilaksanakan pada tahun 1 adalah sebagai berikut:

1. Uji etik penelitian

   Peneliti melakukan uji etik penelitian di Komisi uji etik penelitian Fakultas Kedokteran, Universitas Jenderal Soedirman.

2. Ijin penelitian

   Peneliti mengurus ijin penelitian di Badan Kesatuan Bangsa, Politik, dan Perlindungan Masyarakat dan Dinas Kesehatan Kabupaten Banyumas.

3. Etika penelitian

   Untuk melindungi hak responden penelitian maka pada penelitian ini peneliti melakukan uji etik penelitian, memberikan *informed consent* kepada responden sebagai bukti persetujuan pasien menjadi responden dalam penelitian ini. Uji etik penelitian dilakukan di KEPK FK Unsoed dan telah mendapatkan persetujuan untuk dilaksanakan sesuai dengan rencana penelitian sesuai dengan Surat Persetujuan Etik dari KEKPK FK Unsoed No.1204/KEPK/III/2017. Peneliti menjaga kerahasiaan data dengan cara menggunakan data hanya untuk penelitian dan publikasi hasil penelitian, data hanya dapat diakses oleh peneliti, dan publikasi hasil penelitian tidak mencantumkan identitas pasien.

4. Populasi dan sampel penelitian

   Populasi pada penelitian ini adalah ibu hamil dan tenaga kesehatan di Kabupaten Banyumas. Sampel pada penelitian tahun 1 ini berjumlah 24 orang ibu hamil dan tenaga kesehatan. Penelitian ini merupakan penelitian kualitatif dimana saturasi data merupakan pertimbangan dalam menentukan jumlah partisipan dalam penelitian ini. Kriteria inklusi dalam penelitian ini adalah wanita hamil trimester dua dan tiga, melakukan pemeriksaan kehamilan ke Puskesmas, dan bersedia menjadi partisipan dalam penelitian ini. Sedangkan kriteria tenaga kesehatan yang berpartisipasi dalam penelitian ini adalah dokter/bidan/perawat/ahli kesehatan masyarakat yang bekerja di Puskesmas, memberikan pelayanan pemeriksaan ibu hamil secara langsung maupun tidak langsung, bekerja minimal 3 tahun dan bersedia menjadi partisipan dalam penelitian ini.

5. Pengambilan data

   Proses pengambilan data dilaksanakan dengan Focus Group Discussion (FGD), wawancara mendalam, dan observasi/field notes. Peneliti melakukan dua kali FGD dan delapan in-depth interview. Setiap FGD dilaksanakan sekiar 1,5-2 jam sedangkan wawancara mendalam dilaksanakan sekitar 45-60 menit. Data dikumpulkan menggunakan panduan wawancaraa yang telah disusun oleh peneliti sebelumnya berdasarkan hasil literature

review, didiskusikan dalam tim peneliti, dan dikonsultasikan kepada ekspert di bidang keperawatan maternitas. Pertanyaan juga sudah dilakukan uji terhadap tiga orang ibu hamil untuk mengetahui kemudahan dalam memahami pertanyaan yang diajukan. Saran dari ibu hamil terhadap pertanyaan yang membingungkan digunakan oleh peneliti untuk perbaikan panduan wawancara yang akan digunakan untuk mengumpulkan data selanjutnya.

Pertanyaan yang diajukan selama wawancara antara lain sebagai berikut: 1. Dapatkah Anda menjelaskan tantangan apa saja yang dihadapi saat Anda mengunjungi Puskesmas untuk melakukan pemeriksaan kehamilan pada masa pandemic COVID-19. 2. Jelaskan persepsi Anda tentang pemeriksaan kehamilan di Puskesmas pada masa pandemic COVID-19. 3. Jelaskan bagaimana Anda melihat program pemeriksaan kehamilan di Puskesmas pada masa pandemic COVID-19. 4. Jelaskan cara-cara menurut Anda petugas kesehatan dapat meningkatkan pemeriksaan kehamilan di Puskesmas pada masa pandemic COVID-19. Probe digunakan untuk memperoleh deskripsi lebih lanjut tentang tantangan yang dihadapi oleh ibu hamil dan tenaga kesehatan serta berbagai adaptasi yang dilakukan agar pemeriksaan ibu hamil dapat tetap dilaksanakan meskipun dalam kondisi pandemic COVID-19. Ibu hamil juga diminta untuk menjelaskan apa yang membantu mereka bisa tetap melakukan pemeriksaan kehamilan secara rutin dan menjaga kesehatan selama hamil di masa pandemic COVID-19 ini. Data dikumpulkan dalam periode empat bulan dari bulan Mei sampai dengan Agustus 2021. Saturasi data tercapai pada partisipan ke 31 dimana sudah tidak ada data baru lagi yang diperoleh peneliti dan informasi yang diberikan merupakan pengulangan dari informasi yang telah dimiliki oleh peneliti dari partisipan sebelumnya. Semua partisipan dalam penelitian ini menandatangani informed consent setelah diberi tahu tujuan, prosedur, lama waktu, dan resiko dari penelitian. Semua proses pengumpulan data direkam dalam bentuk rekaman suara dan data hasil observasi ditulis dalam bentuk field notes atas persetujuan partisipan.

6. Analisis data

   Data hasil wawancara dianalisa secara simultan. Peneliti melakukan transcribed verbatim setiap selesai melakukan FGD dan wawancara mendalam. Peneliti membaca hasil verbatim berkali-kali agar familiar dengan data yang diperoleh Dua peneliti melakukan konten analisis terhadap data yang diperoleh. Selanjutnya peneliti membuat coding pada data line by line, mengkategorikan data yang memiliki arti dan konsep yang sama pada satu kelompok, membandingkan antar kategori, menentukan sub-tema, dan tema dari data yang diperoleh. Tim peneliti mendiskusikan hasil analisa data dan melakukan revisi sesuai dengan hasil diskusi. Selanjutnya peneliti meminta partisipan untuk membaca hasil analisa

data yang telah dilakukan dan meminta saran dari partisipan terhadap hasil analisa data jika ditemukan ketidaksesuaian. Data demografi partisipan ditampilkan dalam bentuk tabel yang berisi informasi frekuensi, persentase, dan median untuk usia partisipan.

Peneliti juga menjamin *trustworthiness* sesuai dengan panduan Lincoln and Guba (1978). Sebagian besar peneliti adalah penduduk asli tempat dilaksanakannya penelitian, serta terdapat pewawancara wanita, para peneliti dapat memperoleh kepercayaan dan keyakinan para partisipan penelitian. Peneliti melakukan pengamatan dan pencatatan selama melakukan pengambilan data *(credibility)*. Dalam penelitian ini, terdapat tiga pakar penelitian kualitatif yang mengamati pengumpulan dan pemrosesan data, dan hasilnya dapat diakses oleh partisipan untuk hasilnya secara akurat mencerminkan pengalaman partisipan dalam penelitian ini dan disetujui oleh mereka *(dependability)*. Sepanjang penelitian, para peneliti berusaha untuk mencegah bias pribadi dengan merekam semua perspektif dan pandangan dan menghindari campur tangan dalam pengumpulan data dan proses analisis sebanyak mungkin *(confirmability)*. Ibu hamil yang tidak terlibat dalam penelitian diberi hasil analisa data penelitian, dan mereka menyetujui kategori yang telah dibuat tersebut. Partisipan dalam penelitian ini mewakili berbagai tingkat pendidikan, usia, paritas, status pekerjaan, dan tipe keluarga *(transferability)*.

BAB 5 HASIL DAN PEMBAHASAN

Demographic data of participants

The median age of the participants was 31 years (SD) ranging from 19 to 52 years old. In our study, two third of participants were multiparous, two third of participants were housewives, and almost half of participants graduated from Senior High School.

Table 2. The key participant's demographic data (*n*=25)

Variables	Frequency (%)	Median (Min-Max)
Age (years)		31 (19-42)
<20	1 (4%)	
20-35	19 (76%)	
> 35	5 (20%)	
Parity		
Primiparous	9 (36%)	
Multiparous	16 (64%)	
Occupation		
Seller	1 (4%)	
Teacher	1 (4%)	
Housewives	15 (60%)	
Private employee	6 (24%)	
Government employee	2 (8%)	
Education		
Elementary School	3 (12%)	

Junior High School	6 (24%)
Senior High School	10 (40%)
University	6 (24%)

The median age of the participants was 44.5 years (SD) ranging from 32 to 52 years old. In our study, the majority of general informant were female, multiparous, and all of participant graduated university.

Table 3. The general informant's demographic data

Variables	Frequency (%)	Median (Min-Max)
Sex		
Male	1 (3.22%)	
Female	5 (96.78%)	
Age (years)		44.5 (32-52)
20-35	1 (16.7%)	
> 35	5 (83.3%)	
Parity		
Multiparous	5 (100%)	
Education		
University	6 (100%)	

Themes

This study revealed eleven themes, including perceived risks, perceived barriers, getting support, adopting health promotion behavior, shifting in health care services, pregnancy safety during COVID-19 pandemic, self-care during pregnancy, caring for infant, information sources, online ANC barriers, and compare and contrast. Each themes are described below, with added subthemes and descriptive quotes in each subtheme. The explanation was complemented by findings from the field notes which acquired from observations at the Primary Health Centers.

Table 3. Summary of themes and sub-themes from the transcribed data

Themes	Sub-themes
1. Perceived risks	Perceived vulnerability
	Perceived threat
2. Perceived barriers	Internal barriers
	External barriers
3. Getting support	Having extended family
	Sources of support
	Types of support
4. Adopting health promotion behavior	Precautionary actions
	Nutrition concern
	Social activities restriction
5. Shifting in health care services	Service modifications
	Quality assured
	Health care protocols

	Program adjustments
6. Pregnancy safety during COVID-19 pandemic	Self-protection guidances
	Nutrition during pregnancy
	Exercise during pregnancy
	Childbirth praparation
	Vaccination
7. Self-care during pregnancy	Vital signs
	Fetal growth and development
	Emergency signs
8. Caring for infant	Breastfeeding
	Baby care
	Baby warning signs
9. Information sources	Google/websites
	Social media
	Applications
10. Online ANC barriers	Smartphone belonging
	Less detils
	Connection difficulty
	Quota issue
11. Compare and contrast	Crosscheck the information
	Selecting trusted sources
	Complementing information
	Preferring some Apps
	Supporting in decision making
	Feeling gratefull
	Expectation

1. Perceived risks

This theme is comprised of two subthemes, including perceived vulnerability and perceived threat.

Perceived vulnerability

Almost all of participants stated that the pandemic situation makes them feel anxious because they are a vulnerable group which should be protected either at home or in the working office. Their interactions with others people outside home make them feel insecure. However, participants said that they feel grateful and happy with their pregnancy.

> …I very worried since I am pregnant…my office colleague was confirmed COVID-19 so I feel very anxious…I quickly do an antigen swab…if I am not pregnant I might not be that panicked...(R8, Multiparous, 34 years old)

The participants also mentioned that they feel bit anxious as they may at risk of getting COVID-19. They are worried about their health condition because of immunity decreasing during pregnancy and visiting health care facilities to have ANC or others health problems.

> …I feel fear because I pregnant in the pandemic which my immune system is weak during pregnancy…(R4, Primiparous, 26 years old)

> …I am scared because the COVID-19 spread very quickly, I feel fear when I go to the PHC to do ANC or take my child due to fever…(R13, Multiparous, 23 years old)

Another participant expressed that she had mixed feeling to get pregnant during this time. She had a grateful and anxious at the same time because she waiting for this pregnancy for long time. However, her pregnancy happens at COVID-19 pandemic which make her anxiety to get COVID-19 infection because of her immunity status is decreasing.

> …I'm grateful and happy for my first pregnancy after waiting for a long time…however I also anxious because I get pregnancy during the COVID-19 pandemic…(R16, Multiparous, 34 years old)

Perceived threat

Some participants mentioned that the COVID-19 pandemic make them feel threatened because of the fast and easy virus transmission. They also feel threatened because they see news of the death of pregnant women caused by the COVID-19 virus increasing significantly.

> ...I feel afraid if I infected of the COVID-19 as the virus transmission is vastly and easily, I worry to my health status especially my fetus health in the womb...(R3, Multiparous, 39 years old)
>
> …I feel very scared because the COVID-19 is very dangerous especially for pregnant women…I see in the news, a lot of pregnant women die due to the COVID-19 infection…(R15, Primiparous, 23 years old)

2. Perceived barriers

This theme is comprised of two subthemes, including internal barriers and external barriers.

Internal barriers

Participants explained that the COVID-19 pandemic make several barriers to do their daily activities. The Indonesia government regulation encourage people to stay at home, particularly among the vulnerable groups make participants feel bored and faced difficulties to do some activities outside home. Participants mentioned that they miss pre-COVID-19 pandemic era which they feel free to visit their parents and meet other family members. Having a close relationship among family members are common life style in the rural area of Indonesia.

> …I feel really bored during the COVID-19 pandemic because I have to stay at home all day for very long time…(R23, Multiparous, 36 years old)
>
> …I find difficulty to go outside during the COVID-19 pandemic…this situation makes me feel lazy… I really want to go to my parents' house…(R9, Primiparous, 24 years old)

External barriers

Some participants explained additional challenges during the COVID-19 pandemic. They mentioned that they live with other vulnerable groups such as elderly, children, and comorbid people. This situation makes participants to take care of herself, her parents or children extra carefully. Some participants mentioned that their activities while working outside home increase the chance of being infected with COVID-19.

> ...I have to increase infection precaution practices because my parents have comorbidities, so we have to take care each other…moreover, I have some children, their age are 6 years old, 5 years old, and 3 years old...(R6, Multiparous, 42 years old)

Participants whom working outside home stated that they should combining working duties and pregnancy status during the COVID-19 pandemic. Participant struggling to combine between the COVID-19 prevention, pregnancy care, and work duties.

> ...I am a working mother and sometimes I have to do field work, my husband and my mother said you should not do the filed job however, that is my duty so I have to do field job carefully riding motorbike by my self...(R20, Multiparous, 29 years old)

3. Getting support

This theme is comprised of three subthemes, including having extended family, sources of support, and types support.

Having extended family

Living in extended family is common among Indonesian. Some participants living with their parents whom have comorbid disease. Participants explained that this environment makes them taking care each other and make a mutual support in order to prevent COVID-19 transmission among them in the family cluster.

> …I live with my father and he is sick, so I have to do infection precautions strictly…I always wash my hands while just arrived home…we take care and support each other...(R11, Primiparous, 22 years old)

Sources of support

Living in the rural area makes participants getting closer with their family members, particularly their husband, parents, and parents in law. Almost all participants received support from their husband, parents, parents in law, and others family members during the COVID-19 pandemic. Participants explained that their supportive people give more attention to them and provide a lot of restrictions during the COVID-19 pandemic to prevent of being infected.

> ...My parents and my husband very worry about my health status, they always ask me where are going…my family always remind me to take care myself and limit my mobility…(R17, Primiparous, 27 years old)

Types of support

Participants mentioned that their husband and other family members always support them continuously. The types of support are emotional, informational, appraisal, and instrumental support. Participants explained that they should limit their social activities and non-essential mobilization, which are not easy for those living in the rural area.

> …my husband also often tells me about the COVID-19 prevention, buy mask and sanitizer, and vitamin to protect me from being infected…he also ask me to stay at home and do not go to crowds…he became more attentive to me and make me feel comfort at home...(R21, Multiparous, 32 years old)

4. Adopting health promotion behavior

This theme is comprised of three subthemes, including precautionary actions, nutrition concern, and social activities restriction.

Precautionary actions

Participants in this study described that they should make some adaptations during the COVID-19 pandemic. They practice precautionary actions such as stay at home, physical distancing, wearing mask, washing hands, bring hand sanitizer, taking shower, and changing clothes after going outside home.

> ...the point is to just take care of yourself in this pandemic...(R1, Multiparous, 31 years old)
> ...must keep distance, must less travelling...(R9, Primiparous, 24 years old)
> … the preparation at home such as wash your hands with a mask before going to the Puskesmas or to another clinic.... yes, bring it (handsanitizer)... yes, if you go, bring a hand sanitizer with that mask....keep your distance……(R24, Multiparous, 32 years old)
> ...when come back from outside, wash your hands, immediately change everything from bathing and all kinds of things. In the past, we can just get used to it... …(R15 , Primiparous, 23 years old)

Nutrition concern

Participants explained that they took some actions to improve body immune system during pandemic. They got information that COVID-19 virus may be fight by having a good immunity status. Most participants consumed more vegies, fruits, and high protein source food in order to increase their immune system and had a healthy pregnancy.

> …I need more nutrition because of my pregnancy…I need to consume more vitamin, particularly vitamin C to increase immunity…I always be supported to eat more veggies and fruits...(R18, Multiparous, 36 years old)

Social activity restriction

Almost all of participants explained that they had social activity restrictions during the COVID-19 pandemic. The majority of people whom living in rural area have several social activities, such as neighbor's meeting, religious meeting, praying together at the mosque, helping neighbors prepare for the wedding, etc. Participants were encouraged to stay at home and do not allowed to attend social activities which involve a lot of people in order to prevent the COVID-19 transmission.

> …My husband do not allow me to join social gathering, recitation and *yasinan*…I always attended the event regularly every month before the COVID-19 pandemic…(R6, Multiparous, 42 years old)
> ….since the COVID-19 pandemic, my husband ask me to do not pray together at the mosque because I met a lot of people there….(R17, Primiparous, 27 years old)

5. Shifting in health care services

This theme is comprised of four subthemes, including service modifications, quality assured, health care protocols, and program adjustment.

Service modifications

All of participants mentioned that some health services method had been changed during the COVID-19 pandemic. Participants explained that the health care protocols should be followed when they go to antenatal visits. The antenatal care service also had been modified to reduce the COVID-19 transmission risk between patient and health care provider such as antenatal care duration, distance, referral system, private midwifery clinic, high risk pregnancy, and home visits. Pregnant women received less detailed information regarding their pregnancy assessment results.

> …we usually do several antenatal examination include some physically checks, measures all things as stated in the Indonesia Ministry of Health guidance, however we just measure the blood pressure since the COVID-19 pandemic…we cannot assess pregnant women as detail as before the COVID-19 pandemic and did not explain the pregnant women and her fetus conditions specifically…we only give the most important information to pregnant women such as the fetus position, heartbeat, and estimation weight…I think that are the differences of ANC care between before and after the COVID-19 pandemic… (R29, Multiparous, 47 years old)

Health professionals explained that they spend less time in direct contact with patients during this COVID-19 pandemic. The antenatal assessment focus on patient's health problem and complaint, if there are no pregnancy complaints so they can delay ANC visit to minimize the risk of getting COVID-19. They also give less detailed information related to the fetal growth and development.

> …at the beginning of the COVID-19 pandemic, we often educate pregnant women to stay at home, do not go to health care facilities if there is no health problem and we do home visit... but now we are getting tired too…currently, pregnant women come to the PHC although they have no any health problems related to pregnancy because they want to know their fetus health status…(R27, Multiparous, 32 years old)
>
> …pregnant women come to PHC because they have health problem such as their teeth becoming sick…we do home visit only for high risk pregnant women...(R31, Multiparous, 51 years old)
>
> …we do the pregnancy examination in a short duration and just focus on the important things…(R28, Multiparous, 42 years old)

Participants mentioned that the ANC assessment duration and discussion session were short. They had no chance to express their feeling and ask some questions related to their pregnancy.

> …when I have ultrasound examination, the doctor did not explained the results in detail…he just say that it's good and normal, the doctor didn't give me the opportunity to express my feeling or ask some questions…(R10, Multiparous, 33 years old)

Health professionals mentioned that they suggest the pregnant women to use nearest health service post or midwives private services in their village and reduce inappropriate referral to hospital in order to prevent the COVID-19 transmission.

> ...If there are no health problems, we suggest pregnant women to do ANC in the village midwife practice, so pregnant women who come from far away do not need to conduct

> ANC in PHC in order to minimize mobilization and contact with a lot of people because just a few pregnant women do ANC at the village midwife... (R27, Multiparous, 32 years old)
>
> ...we reduce the number of ANC or childbirth referral to hospital…pregnant women advised to perform ANC as scheduled…we also encourage pregnant women to do ANC at the nearest midwife clinic…(R26, Male, 52 years old)

Quality assured

Almost all participants explained that they feel satisfied with care services provided by health professionals during pandemic. Although there were some restrictions during the COVID-19 pandemic, participants stated that the quality of antenatal care service is satisfied. The health care provider also reported that they always provide a good quality antenatal care to pregnant mothers during the COVID-19 pandemic.

> … I satisfied with the quality of ANC service in PHC….(R28, Multiparous, 34 years old)
>
> … So far, the ANC service is enough for me....(R14, Primiparous, 22 years old)
>
> …The ANC services for pregnant women during this COVID-19 pandemic still running as usual….(R29, Multiparous, 47 years old)

Health care protocols

All participants said that they have to adhere health protocols when going outside home. They always wear mask, washing hands, and physical distancing when doing ANC. Health care providers confirmed that there is a big banner in front of the Primary Health Center to inform patients about health care protocols. They always remind patient to follow health care protocols and they admonishment patients who do not comply with health protocols. All participant stated that they applying the COVID-19 health protocols (wearing mask, washing hands, physical distancing)

> ….we provide health care services in the PHC using a high standard of the COVID-19 precautions… we always remind patients and their families who come to PHC to wear mask, make a physical distancing at least 2 meters, and wash our hands using water and soap before and after entering the PHC...(R26, Male, 52 years old)

New procedures

All of participants described new procedure on ANC, birth, and postnatal. Health care providers confirmed the perinatal care procedures had been changed in order to prevent the COVID-19 transmission. Health care providers apply new procedures for pregnancy checking and delivery during pandemic such as early screening, separating healthy and suspected pregnant women, seating/ room arrangement and wearing PPE (personal protective equipment).

> ...we provide ANC service as usual however, we have a strict health protocols such as screening the pregnant women's temperature, assess their symptoms such as having cough, cold, or travelling…the pregnant women can go directly to obstetric examination polyclinic…pregnant women who have symptoms such as coughs and colds will be placed in the isolation room by security guard…(R27, Multiparous, 32 years old)

> …there is health screening for pregnant women before entering the PHC, pregnant women can enter the examination room when they pass the screening check list, we help the administrative process so they do not need meet a lot of people in the waiting room…if pregnant women have some symptoms such as fever, colds, or cough, then we put them into the isolation room…R31, Multiparous, 51 years old)

Health care providers also explained that they applying new procedures for the delivery process in the PHC. They performed early screening, using isolation room for normal pregnant women with COVID-19, separating the non-COVID-19 women, assisting the confirmed COVID-19 patient delivery process, care coordination with the village midwife, wearing hazmat while assisting the delivery process, and only refer women with pathological pregnancies to hospital.

> …. we have a special isolation room for childbirth, so if a pregnant women comes to PHC, why do some assessment such as travel history, pregnant women who have a travel history directly go to the isolation room…we do not care pregnant women without travel history or cold symptoms together with those who have symptoms….we also wear appropriate PPE to help childbirth of both symptomatic and asymptomatic women...(R27, Multiparous, 32 years old)
>
> …We experienced helped childbirth of confirmed COVID-19 women twice…we use hazmat during the delivery process…we suggest confirmed COVID-19 pregnant women to inform the village midwife when they have true childbirth signs the village midwife will contact the PHC to prepare isolation room and wear hazmat…we help confirmed COVID-19 patient to give birth here as long as they do not have emergency or pathologic condition…(R29, Multiparous, 47 years old)

Health care providers also explained that they applying new procedures for the post delivery process in the PHC. They use isolation room, separate the baby with mother after birth, limit the visitors, and separate the waiting room for families.

> …We always open the window after finish delivery process…we have experience help some confirmed COVID-19 patients and all health care providers stay healthy until now...(R30, Multiparous, 42 years old)
>
> …. We separate confirmed COVID-19 postpartum mother with her newborn…all newborn from confirmed COVID-19 woman is healthy…we also limit the number of visitors and separate the waiting room for confirmed COVID-19 families...(R28, Multiparous, 42 years old)

Antenatal class program adjustment

Pregnancy class (antenatal health education program) held by Primary Health Care is still running during this pandemic. Half of participants, including those who had comorbid, said that they had pregnancy class during the COVID-19. Some participants mentioned that they do not join the pregnancy class because the limitation number of participants. The health care providers confirmed that the pregnancy class was modified by limiting the number of participants in each meeting by using policy invited participants only and applying strict health care protocols during the pregnancy class.

> …Pregnancy class is still running until now with a strict health protocols...(R23, Multiparous, 36 years old)

…The pregnancy class conducted once a month and limited to only 10 pregnant women in a village…we only invited high risk pregnant women to take pregnancy class because of the restrictions during the COVID-19 pandemic, we are trying to provide pregnancy class for all pregnant women…(R29, Multiparous,47 years old)

…Only invited pregnant women can attend the class now…all pregnant women may join the pregnancy class before the COVID-19 pandemic….(R28, Multiparous, 42 years old)

Health care providers explained that they modify the implementation of pregnancy training class program during this pandemic. The modifications aimed to prevent the COVID-19 transmission among pregnant women. The program adjustment were limiting the number of participants, applying the COVID-19 health protocols, limiting the number of participants (by invitation), applying the COVID-19 health protocols, limiting the duration of meeting.

…We still have pregnancy class program in the community…the number of invited pregnant women is limited due to the distance among pregnant women consideration. We also reduce the number of pregnancy class from 12 to 8 meetings due to uncertain COVID-19 transmission….we always apply health protocols during pregnancy class such as wear mask, wash hands, and keep physical distancing…. (R27, Multiparous, 32 years old)

...Pregnancy class program have been accomplished each months with number of participants limitation…we invite 6 to 10 high risk pregnant women to join the class…we also regulate the pregnancy class duration and apply high standard of the COVID-19 transmission precautions...(R31, Multiparous, 51 years old)

6. Pregnancy safety during COVID-19 pandemic

This theme is comprised of four subthemes, including self protection guidance, nutrition during pregnancy, exercise during pregnancy, and child birth preparation.

Self protection guidance

All of participants reported that they need information about how to protect themselves and their foetus from the COVID-19 transmission.

...I frequently searching information from several sources about the COVID-19 prevention strategies because this is my first pregnancy …(R17, Primiparous, 27 years old)

…I think the most important information needed by pregnant women currently is how to protect mt self and my foetus from the COVID-19 transmission…(R10, Multiparous, 33 years old)

Nutrition during pregnancy

Almost all participants explained that they need information about nutrition during the COVID-19 pandemic, including vitamin and herbal medicine which safe for pregnant women to increase imunity.

…I read information in social media to eat more vegetable and fruits during the COVID-19 pandemic in order to increase our imunity….(R1, Multiparous, 3 years old)

…I got information that pregnant women may not consume some kinds of medicine, however I want to know what kind of vitamins are safe for pregnant women to increase my imunity....(R16, Primiparous, 34 years old)

Exercise during pregnancy

Half participants explained that they want to perform exercise during pregnancy, however the antenatal class is closed during the COVID-19 pandemic, so they looking for the exercise during pregnancy information using their smartphone.

> …I do pregnancy exercise during my first pregnancy and I want to do it during this pregnancy so I just looking for the pregnancy exercise in Youtube and just follow the instructure….(R4, Primiparous, 26 years old)

Health care professionals mentioned that the pregnancy exercise is recommended to be performed by pregnant women at home due to the COVID-19 pandemic.

> …We suggest pregnant women to do exercise at home because the COVID-19 situation is not support to do antenatal class….(R30, Multiparous, 42 years old)

Childbirth preparation

All participants explained that they looking for information about childbirth preparation during the COVID-19 pandemic. They stated that the uncertainty situation make them feel confuse and they try seeking information using internet.

> … I am searching information about child birth preparation, such as where and when I can gave birth, what is the requirements, how to protect my baby from the COVID-19 after birth….(R25, Primiparous, 24 years old)

Vaccination

Almost all participants explained that they need information about the effectiveness and safety of the COVID-19 vaccine for pregnant women. They consider about themselves and their fetus safety.

> …Some people told me that vaccine is not safe for pregnant women, then I go to WHO wesite and looking the information about the vaccine safety for pregnant women….(R20, Multiparous, 29 years old)

Health care professionals mentioned that the majority of pregnant women asked for information about the COVID-19 vaccine safety. There were a lot of hoax news received by preganant wome and it make them feel ambiguous to be vactinated.

> …Pregnant women asked whether they can be vaccinated, what kind of vaccine is safe for pregnant women, when pregnant women should receive vaccine….(R28, Multiparous, 34 years old)

7. Self-care during pregnancy

This theme is comprised of three subthemes, including vital signs measurement, foetus groth and development, and emergency signs.

Vital signs measurement

Some participants mentioned that some health services method had been changed during the COVID-19 pandemic. The antenatal care service also had been modified to reduce the COVID-19 transmission risk between patient and health care provider such as antenatal care

duration, distance, referral system, private midwifery clinic, high risk pregnancy, and home visits. Pregnant women need more information about vital signs to make sure that they are well.

> …the antenatal examination duration is very short and suggested to come when I experienced some problems. I juat curious how to know that I and my fetus are fine. I search about the vital signs, such as normal pulse, breath frequency, and weight gain during pregnancy… (R13, Multiparous, 23 years old)
>
> …I think antenatal care's procedure quite different between before and after the COVID-19 pandemic…the duration of examination result is very short so I looked for the examination's results interpretation, such as blood pressure, fetus weight and heart rate….(R8, Multiparous, 34 years old)

Health professionals indicated that they employ fewer time to discuss with patients during this COVID-19 pandemic. The antenatal care focus on high risk pregnancy. They also give fewer detailed information related to the physical examination results.

> …before the COVID-19 pandemic, we do several physical examination including blood pressure, pulse, breath, body temperature, heigh and weight, fundal height….since the COVID-19 pandemic, we cannot measure pregnant women as detail as before the COVID-19 pandemic and did not explain the result of physical examination to pregnant women in detail… (R27, Multiparous, 32 years old)

Fetal growth and development

Some participants mentioned that they experienced fewer time to contact with health care providers. They only got a few information related to antenatal examination results, particularly the fetal growth and development. They try to search more information about the normal fetal growth and development using their smartphone.

> …I need more information about normal fetal growth and development since this is my first pregnancy so I do not have previous experience…I just have a little time to discuss with health provider, so I explore more information about fetal growth and development month by month in internet using my smartphone….(R18, Multiparous, 36 years old)
>
> …My husband informed me that my pregnany is fine, he asked the fetal growth and development to a doctor via online in a pregnancy application…(R7, Multiparous, 19 years old)

Health professionals described that they spend less time with pregnant women during the COVID-19 pandemic and provide less detil information of the antenatal care results related to the fetal growth and development.

> …during the COVID-19 pandemic, we educate pregnant women to stay at home, do not go to health care facilities if they do not have any health problems...currently, pregnant women come to the PHC but we only provide a few time to discuss the antenatal care results, such as their fetus health status, position, heartbeat, estimation weight, estimation birth … (R231, Multiparous, 51 years old)

Emergency signs

All of participants mentioned that they have been informed to stay at home during the COVID-19 pandemic, they were advised to visit health care center when they experienced health problems. However, the majority of participant have no sufficient information on what condition they should come to health care center or when they should visit health care center.

Then they looked for information about emergency signs of pregnant women which they have to visit health care center soon.

> …I had been suggested by health care provider to stay at home and come to health care center when I feel not good, but I do not know what situation make me have to go to health care center then I searced in internet...(R15, Primiparous, 23 years old)
>
> …I borrow my husband's smartphone to look for signs of emergency during pregnancy in internet…(R6, Multiparous, 42 years old)

Health professionals explained that they spend less time in direct contact with patients during this COVID-19 pandemic. The antenatal assessment focus on patient's health problem and complaint, if there are no pregnancy complaints so they can delay ANC visit to minimize the risk of getting COVID-19. They also give less detailed information related to the fetal growth and development.

> …at the beginning of the COVID-19 pandemic, we often educate pregnant women to stay at home, do not go to health care facilities if there is no health problem and we do home visit... (R27, Multiparous, 32 years old)

8. Caring for infant

This theme is comprised of three subthemes, including breastfeeding, baby care, and baby warning signs.

Breastfeeding

Almost all of participants mentioned that the most information topic needed is breastfeeding safety during the COVID-19 pandemic and exclusive breastfeeding for working mother. They consider the safety of direct contact during the early breastfeeding initiation and how to breastfeed in the health care center which there were a lot of people come with health problems, including COVID-19.

> …during the COVID-19 pandemic, I always stay at home but I just wonder how to breastfeed my baby just after birth in health care center since a lot of people come due to health problems. Is it safe to my baby? How to breastfeed safely in health care center?...so I search the breastfeed safety during the COVID-19 pandemic information using smartphone and asked in chatt room of an application…(R17, Primiparous, 27 years old)

Health professionals described that every pregnant mother have to take an antigen swab before give birth. A healthy postpartum women and baby may be rooming in, however a COVID-19 confirmed postpartum women is cared separately with baby in order to prevent the COVID-19 transmission.

> …the Ministry of Health regulation during the COVID-19 pandemic is pregnant women have to take an antigen or PCR swab before give birth in a PHC/clinic….we have two types of delivery room, one room is provided for a healthy mother and baby and one room is provided for a COVID-19 confirmed mother which cared separately with baby…a healthy postpartum women may breastfeed the baby directly and a COVID-19 confirmed postpartum women may express breastmilk and health care provider give to baby using a spoon…(R29, Multiparous, 47 years old)

Baby care

All of participants mentioned that they curious about baby care during the COVID-19 pandemic. They stated that they feel anxious to take care a baby during the COVID-19 pandemic due to the transmission issue. The majority of participant looking for information about how to take care the baby during the COVID-19 pandemic in internet and not permit the coleagues and relatives to not visit the newborn.

> …I read from the internet that we should take care a newborn more carefuly and may not contact with other people to prevent the COVID-19 transmission, so I told my coleagues and relatives to not visit my baby...(R17, Primiparous, 27 years old)
>
> …My husband told me that I should take care the baby by my self during the COVID-19 pandemic, so I learn how to bathing, massaging, and caring for the newborn umbilicus from the internet….I had asked the Traditional Birth Attendant to take care my previous newborn but I will take care my baby by my self now…(R6, Multiparous, 42 years old)

Baby warning signs

Almost all of primiparous participants mentioned that they need information about the baby emergency signs as a warning to parents bring the baby to health care center. They looking for information about baby's signs and symptomps which indicate emergency situation. They also feel fear to go to health care center due to the anxiety of COVID-19 transmission to their baby.

> …I feel anxious to take my baby to a hospital or clinic during the COVID-19 pandemic…I search the baby's emergency warning signs so I will only go to a hospital when my baby experience those symptomps...(R22, Multiparous, 35 years old)

9. Information sources

This theme is comprised of three subthemes, including google/website, social media, and applications.

Google/website

Some participants mentioned that they looking for information related to preganancy and postpartum period using a smartphone in the internet. The most popular web search engine is Google which used to look for various information needed by pregnant women. They also used Google to search information from trusted website, such as Indonesian Ministry of Health, Indonesian COVID-19 Committee, and World Health organization. Some participants did pregnancy exercise following a video in Youtube.

> …My husband told me how to explore information using Google search then select the trusted website such as Ministry of healh and the COVID-19 committee's website, WHO…(R17, Primiparous, 27 years old)
>
> …I am looking for current information related to COVID-19 in Google because it will provide information fastly, I follow pregnancy exercice in Youtube…. R19, Multiparous, 34 years old)

Social media

Almost all of participants mentioned that they used social media to gain more information related to COVID-19, particularly information which specific to pregnancy and postpartum period. The majority of pregnant women used Whats up, Instagram, and facebook to update information about the current COVID-19 situation.

> …I got information related to pregnancy safety during the COVID-19 pandemic from Instagram and facebook...(R10, Multiparous, 33 years old)
> …almost every day I searched the update information regarding the COVID-19 in facebook and Instagram, sometimes my friend also update information in Whatts up group...I always interested to read information about pregnancy and caring for newborn during the COVID-19 pandemic….(R20, Multiparous, 29 years old)

Application

Some of participants mentioned that they used some kinds of application related to pregnancy, postpartum, and newborn care.

> …I searched application related to pregnancy and found some free applications. I used Kehamilan + application because it provide information related to pregnancy...(R24, Multiparous, 32 years old)
> ….since the first month of pregnancy, I install Halo Ibu Hamil application….it is easy to use and very useful for me….(R17, Primiparous, 27 years old)

10. Online ANC barriers

This theme is comprised of four subthemes, including smartphone belonging, less details, internet connection difficulty, and quota issue.

Smartphone belonging

Living in the rural area makes some participants do not have smartphone because the majority of them are stay at home mother and working as a farmer whom do not need a smartphone. Some participants mentioned that they have handphone which may be used to send a short message or call only which did not connect to internet. So, they asked for their husband to look for some information related to pregnancy, child birth, and newborn care during pregnancy. Participants explained that their husband also install an application related to pregnancy in their smartphone.

> ...I do not have a smartphone, I only used an old handphone so I asked my husband to search for information related to pregnancy in internet and he also install pregnancy related application….(R2, Multiparous, 29 years old)
> …sometimes I used my husband's smartphone to look for information in the internet about childbirth, and baby care during the COVID-19 pandemic…(R5, Multiparous, 37 years old)

No direct contact

Participants explained that they found difficulty of getting information in the internet or using an application such as medical terms and could not discuss their health problems.

> ...We can get a lot of information from the internet, but sometimes I confuse with medical terms…....(R11, Primiparous, 22 years old)
> ...I enjoy get information from the internet easily, however I do not satisfy because I could not discuss with health care providers directly…(R8, Primiparous, 34 years old)

Internet connection difficulty

Almost all of participants living in the rural area which has low internet connection. Participants explained that they have to go to other place to get internet connection. They should move to another place which have a better internet connection.

> ...I asked my husband to send me to the municipality park which has good internet connection then I can search a lot of information easily there because of good internet connection…(R19, Multiparous, 34 years old)

Quota issue

Participants explained that they also had an internet quota limitation since their children also used internet to facilitate their study during the COVID-19 pandemic. They should share the internet quota with other family members.

> ...I have two children and they used internet to get learning materials from their teachers, so I have to share the internet quota with them…(R6, Multiparous, 42 years old)

11. Compare and contrast

This theme is comprised of four subthemes, including cross check the information, selecting trusted sources, complementing information, preferring some Apps, and supporting in decision making.

Crosscheck the information

Participants mentioned that not all of information got from the internet is true, however sometimes they feel confuse which information is valid. Almost all of participants mentioned that they always crosscheck the information which they got from the internet to health care providers or community health volunteer.

> …I always clarify the information from the internet to health care providers when I visit PHC to get pregnancy examination...(R18, Multiparous, 36 years old)
>
> …sometimes I discuss with community health volunteer about information which I got from social media or internet……(R6, Multiparous, 42 years old)

Selecting trusted sources

Some participants stated that they only select the trusted information sources since there are a lot of hoax information which spread easily and massively in the internet.

> …I asked health care providers, which website can be trusted in providing a valid information only...(R20, Multiparous, 29 years old)

Complementing information

Some participants mentioned that they search for information from several sources using theor smartphone. Some of the information are have both similarity and differences, so they comparing and completing the information each other.

> …there are a lot of information in the internet about one topic, we can select the articles and read the article until finish to get the whole information...I also have a pregnancy application, however sometimes the information between some articles are different so I compare each others and asked to midwives the right information…(R10, Multiparous, 33 years old)

> …My husband looking for information using his smartphone, we discuss the information from some sources which completing each others, then we make a conclusion about the topic…(R23, Multiparous, 36 years old)

Preferring some Apps

Some participants mentioned that they prefer to install pregnancy related Apps in their smartphone. They select the easiest to understand, complete, easy to use, and appropiate information Apps.

> …I install The Asia Parents Apps because it is easy to use and the information is suitable for me...(R16, Primiparous, 34 years old)
>
> …I search some Apps related to pregnancy, then I install some Apps such as Kehamilan+, Halo Ibu Hamil and I still used until now because they have sufficient information for pregnant women such as nutrition, gestational age, common complaints…(R24, Multiparous, 32 years old)

Supporting in decision making

Almost all of participants mentioned that information from the internet influence their attitude and behavior during pregnancy, child birth preparation, and vaccination during the COVID-19 pandemic.

> …I've used Halo Ibu Hamil Apps, we can know the gestation age and predict the fetus weight, when I found my weight is less than normal so I know what should I do, so I know better, there are tips of every day live, so you have to read every day….(R17, Primiparous, 27 years old)

Feeling gratefull

Some participants mentioned that they feel gratefull for the technology development so they can get information fastly and easily

> …I am very gratefull because we can use smartphone to get information so fast and so easy...(R18, Multiparous, 36 years old)

Expectation

Some participants mentioned that they expect a specific information related to infection prevention, childbirth preparation, nutrition and vitamin to increase imunity for pregnant women during the COVID-19 pandemic.

> … Yes, apart from keeping your distance, wear masks, wash your hands of all kinds, what vitamins are for your immune system to be stable, sometimes pregnant women have contractions and they worry about their fetus condition...(R3, Multiparous, 39 years old)
>
> …There's a lot of information about covid, but at least it's only information related to covid in general but not specifically for pregnant women ….(R11, Primiparous, 22 years old)

Diskusi

Penelitian mengkaji tantangan yang dihadapi dalam pelaksanaan ANC dimasa pandemi COVID-19. Sesuai dengan anjuran dari WHO (2019), ANC haru tetap dilaksanakan melalui protokol kesehatan yang sangat ketat agar bisa mempertahankan status kesehatan ibu dan bayi di masa pandemic COVID-19 ini. Hasil penelitian ini menunjukkan bahwa bahwa mayoritas

ibu hamil yang berpartisipasi dalam penelitian ini tetap menggunakan pelayanan antenatal yang diberikan oleh Puskesmas selama masa pandemi. Partisipan dalam penelitian ini sebagian besar merupakan mutipara, berpendidikan SMA, berusia 19-51 tahun, dan merupakan ibu rumah tangga. Hasil penelitian menunjukkan terdapat lima tema, yaitu perceived risks (perceived vulnerability, perceived threat), perceived barriers (internal barriers, external barriers), getting social support (mutual support, sources of support, types of support), adopting health promotion behavior (precautionary actions, nutrition, social activity), and shifting in health care services (service modifications, quality assured, health care protocols, program modifications).

Perubahan layanan kesehatan wanita hamil dimasa pandemic COVID-19 ini mengurangi pemanfaatan pelayanan kesehatan sebesar 32%. Demikian pula, penelitian yang dilakukan selama pandemi di kawasan Asia Pasifik melaporkan pemanfaatan layanan pemeriksaan ibu hamil turun hingga setengahnya. Beberapa fasilitas kesehatan di negara maju mengubah ruang bersalin menjadi unit COVID-19, untuk mengakomodasi peningkatan jumlah pasien COVID- 19 pasien. Di India dan Nepal, pandemi juga memperlihatkan kekurangan dalam sistem kesehatan, dengan sebagian besar fasilitas kesehatan tidak siap untuk menangani pandemi. Selain itu, kurangnya aksesibilitas transportasi meningkatkan risiko ibu hamil tidak sepenuhnya memanfaatkan layanan ANC. Kurangnya transportasi menyebabkan wanita hamil di Nepal mengalami komplikasi dalam perjalanan ke rumah sakit dan meninggal di fasilitas kesehatan sebelum menerima perawatan yang tepat. Hal ini kemungkinan karena pendapatan yang jauh berkurang, daya beli berkurang, dan ketidakmampuan membayar layanan kesehatan, sehingga membatasi pemanfaatan layanan ANC (Tadesse, 2020). Hasil penelitian kualitatif lain sebelumnya menunjukkan bahwa ketika wanita melaporkan ketidakpuasan dengan layanan ANC, sebagian besar terkait dengan penerapan pembatasan terkait COVID-19, yang mengakibatkan antenatal dan kelas ibu hamil dibatalkan, ditunda atau disampaikan melalui telemedicine (Meanay, Leitao, Olander, & Paus, 2021).

Kecemasan akibat takut positif dan takut dikarantina disebut-sebut sebagai alasan untuk tidak menghadiri ANC selama masa pandemi saat ini. Demikian pula, penelitian lain juga membuktikan bahwa ketidakpastian, ketakutan, dan tingkat stres yang tinggi di sekitar pandemi membuat ibu hamil tidak memanfaatkan fasilitas kesehatan. Beberapa peserta melaporkan pernah menyaksikan ibu hamil mengalami stigma setelah mengunjungi fasilitas kesehatan. Hal ini menunjukkan bahwa masyarakat mengira bahwa ibu hamil yang berobat ke fasilitas kesehatan sudah terlanjur terinfeksi virus tersebut. Oleh karena itu, ibu hamil menahan diri untuk tidak mengunjungi fasilitas kesehatan untuk mengantisipasi stigma yang akan datang.

Partisipan dalam penelitian menyatakan dapat menghindarkan diri dari pandemi dengan meminimalkan risiko terpapar virus. Mereka beranggapan bahwa mengunjungi fasilitas kesehatan di masa pandemi ini tidak aman karena ruang tunggu yang terlalu padat, lingkungan fasilitas kesehatan yang tidak bersih, dan lain-lain. 19 minimisasi risiko juga dijelaskan oleh penelitian sebelumnya (Hailemariam, Agegnehn, & Derese, 2021).

Wanita hamil menggunakan berbagai metode untuk mengurangi stres dan berfokus pada dukungan yang diterima oleh wanita hamil untuk mengelola stres selama pandemi sesuai dengan strategi yang digunakan sebelum pandemi. Responden melaporkan bahwa mereka mengandalkan dukungan informal, terutama dukungan dari pasangan, keluarga, dan teman, untuk membantu mengatasi stres dan mendukung kesejahteraan mereka. Namun, hasil penelitian ini juga menunjukkan bahwa dukungan sosial terhambat karena pandemi. Responden menyampaikan bahwa terdapat hambatan untuk mendapatkan dukungan sosial mereka, yang mengakibatkan perasaan kewalahan dengan tanggung jawab dan perasaan terisolasi dalam komunitas mereka. Mereka juga meminta lebih banyak dukungan formal untuk disediakan (Meanay, Leitao, Olander, & Paus, 2021).

Situasi pandemi COVID-19 lebih sulit di negara berkembang karena kurangnya infrastruktur dan sumber daya yang memadai. Hal ini disebabkan oleh runtuhnya sistem kesehatan atau pilihan yang dibuat secara sengaja dalam menanggapi pandemic oleh pemerintah, pengurangan tenaga kerja, pengurangan akses, dan juga beberapa fasilitas kesehatan yang membatasi jumlah ANC kunjungan karena takut ibu hamil tertular virus COVID-19 (Tadesse, 2020). Pembatasan yang diterapkan dalam layanan pemeriksaan kehamilan dan bersalin membatasi interaksi tatap muka mereka dengan profesional kesehatan dan berarti pasangan mereka tidak dapat menghadiri janji antenatal atau mendukung mereka pada periode postpartum dalam pengaturan bersalin. Kurangnya informasi tentang COVID-19 dan kehamilan membuat perempuan memiliki ketidakpastian yang lebih besar tentang kehamilan dan kelahiran. Hail penelitian ini menunjukkan kurangnya akses ke perawatan antenatal dan berkurangnya dukungan sosial yang dirasakan sebagai akibat dari pembatasan yang diterapkan dalam menanggapi pandemi COVID-19, berpotensi meningkatkan masalah kesehatan selama masa kehamilan (Meaney, Leitao, Olander, & Paus, 2021).

Beberapa faktor terkait COVID-19 yang mempengaruhi penyerapan layanan antenatal care selama pandemi. Hambatan terkait fasilitas kesehatan, persepsi kualitas perawatan yang buruk selama pandemi, tindakan pemerintah terhadap COVID-19, kecemasan terkait pandemi, dan minimalisasi risiko adalah faktor-faktor yang diidentifikasi yang mempengaruhi penggunaan layanan perawatan antenatal saat ini di kalangan wanita di pedesaan Bench-Sheko

Zone (Hailemaria, Agegnehu, & Derese, 2021).

Petugas kesehatan menjelaskan berbagai hambatan fasilitas terkait dengan logistik yang buruk, pemindahan staf, dan kurangnya paket insentif yang memengaruhi penyediaan layanan ANC selama pandemi. Persepsi ibu tentang kualitas pelayanan yang buruk selama COVID-19 dijelaskan sebagai alasan utama mengapa ibu hamil tidak menghadiri ANC. Petugas kesehatan ada yang tidak menggunakan APD dengan tepat, klien tidak diberikan waktu kontak yang memadai dan mendapatkan perawatan yang kurang tepat, dan petugas kesehatan juga mungkin tidak memiliki keinginan untuk bekerja dalam situasi saat ini. Hasil penelitian ini menegaskan adanya perubahan signifikan dalam kualitas layanan kesehatan setelah terjadinya pandemic COVID-19 (Hailemariam, Agegnehn, & Derese, 2021).

Wanita hamil yang bertempat tinggal di wilayah perkotaan memanfaatkan pelayanan pemeriksaan kehamilan yang lebih besar dari pada wanita hamil yang tinggal di pedesaan. Hal ini mungkin disebabkan karena ibu hamil yang tinggal di daerah perkotaan mungkin memiliki akses yang lebih baik ke fasilitas kesehatan dan kesadaran yang lebih baik tentang pentingnya pemanfaatan ANC (Tadesse, 2020, Etiopia). Ketakutan akan infeksi COVID-19 juga ditemukan secara signifikan terkait dengan pengurangan 87% dalam pemanfaatan layanan ANC. Konsisten dengan ini di Bnei Brak, sebuah kota di Israel, salah satu masalah signifikan yang dihadapi dalam penyediaan pelayanan ANC adalah penurunan jumlah wanita yang melakukan ANC dikarenakan rasa takut. Banyak wanita yang khawatir tertular virus corona dan takut melakukan pemeriksaan kehamilan, dengan beberapa wanita hamil sama sekali menghindari layanan tersebut. Ketakutan akan kedekatan fisik juga dapat membatasi atau mengubah penyediaan perawatan. Demikian pula survei yang dilakukan di Italia terhadap 100 ibu hamil menunjukkan adanya ketakutan mengunjungi rumah sakit untuk melahirkan karena takut tertular virus COVID-19 (Tadesse, 2020)

Wanita hamil juga memiliki keterbatasan informasi terkait kondisi kehamilannya dan persiapan persalinan pada masa pandemic COVID-19. Hasil penelitian ini sejalan dengan penelitian sebelumnya yang mengamati bahwa wanita dalam periode perinatal sangat termotivasi untuk mencari informasi yang disesuaikan untuk mengurangi risiko termasuk informasi yang berkaitan dengan isolasi diri dan keamanan saat hamil. Penyediaan informasi merupakan elemen penting dari pelayanan antenatal berkualitas baik dan kurangnya informasi terkait COVID-19 membuat ibu hamil merasa tidak berdaya. Wanita hamil berjuang untuk mempersiapkan persalinan dan kelahiran dimasa pandemic COVID-19 ini dan suami mereka tidak dapat hadir untuk mendukung mereka. (Meanay, Leitao, Olander, & Paus, 2021).

BAB VI. RENCANA TAHAPAN SELANJUTNYA (TAHUN KEDUA)

Peneliti merencanakan mengembangkan Denia terintergrasi dengan menggunakan hasil penelitian tahun ke 1. Peneliti akan bekerja sama dengan Puskesmas yang telah menggunakan Sistem Puskesmas untuk melakukan uji coba integrasi Denia. Penelitian selanjutnya dilakukan dengan metode kuantitatif untuk menguji efektifitas Denia terintegrasi.

BAB VIII. KESIMPULAN DAN SARAN

Pandemi COVID-19 telah mengubah banyak sendi kehidupan manusia, terutama di sektor kesehatan diantaranya adalah pelayanan kesehatan ibu hamil. Berbagai tantangan dihadapi oleh ibu hamil dan tenaga kesehatan dalam melakukan pemeriksaan kehamilan dimasa pandei COVID-19. Ibu hamil mencari informasi dengan banyak menggunakan internet, terutama di website, sosial media, dan applikasi selama pandemi COVID-19 ini.

DAFTAR PUSTAKA

Alifah, R. N. (2016). *Faktor-faktor yang mempengaruhi kepatuhan ibu hamil mengkonsumsi tablet fe di Puskesmas Gamping 2*. Diperoleh dari http://repository.umy.ac.id/bitstream/handle/123456789/7348/12.%20NASKAH%20PUBLIKASI.pdf?sequence=12&isAllowed=y

Asyirah, S. (2012). *Faktor-faktor yang berhubungan dengan anemia pada ibu hamil di wilayah kerja Puskesmas Bajeng Kecamatan Bajeng Kabupaten Gowa tahun 2012*. Diperoleh dari http://lib.ui.ac.id/file?file=digital/20314687-S_Sitti%20Asyirah.pdf

Bentley, A., Atkinson, A., Jezek, J., et al. (2001). Whole cell biosensors — electrochemical and optical approaches to ecotoxicity testing. *Toxicology in Vitro,* 15: 469-475.

Biro Pusat Statistik. (2008). Survey Demografi dan Kesehatan Indonesia. BKKBN: Jakarta

Biro Pusat Statistik. (2012). Survey Demografi dan Kesehatan Indonesia. BKKBN: Jakarta

Botelho, B.G., de Assis, L.P., & Sena, M.M. (2014). Development and analytical validation of a simple multivariate calibration method using digital scanner images for sunset yellow determination in soft beverages. *Food Chemistry*, 159: 175-180.

Brabin, B.J., Hakimi, M., & Pelletier, D. (2001). An analysis of anaemia and pregnancy-related maternal mortality. *Journal of Nutrition*, 131:604S-615S.

Collings, A.F. & Caruso, F. (1997). Biosensors: Recent advances. *Reports on Progress in Physics,* 60: 1397-1445.

Dina, D., Seweng, A., & Nyorog, M. (2013). *Faktor determinan Kejadian Perdarahan Postpartum di RSUD Majene, Kabupaten Majene.* Skripsi. Stikes Bina Bangsa Majene

Duke, R.M., O'Brien, J.E., McCabe, T., et al. (2008). Colorimetric sensing of anions in aqueous solution using a charge neutral, cleft-like, amidothiourea receptor: Tilting the balance between hydrogen bonding and deprotonation in anion recognition. *Organic Biomolecular Chemistry,* 6: 4089-4092.

Farré, M., Pasini, O., Carmen Alonso, M., et al. (2001). Toxicity assessment of organic pollution in wastewaters using a bacterial biosensor. *Analytica Chimica Acta,* 426: 155-165.

Firdaus, M.L., Alwi, W., Trinoveldi, F., et al. (2014) Determination of Chromium and Iron Using Digital Image-based Colorimetry. *Procedia Environmental Sciences,* 20: 298-304.

Fikriana, U. (2013). *Faktor – Faktor yang Mempengaruhi Kejadian Anemia Pada Ibu Hamil di Puskesmas Kasihan II Bantul Tahun 2013*. Diperoleh dari http://opac.unisayogya. ac.id/1272/

Hasanah, W. (2014). *Anemia dengan Perdarahan Postpartum di RSU dr. Wahidin Soediro Husodo Mojokerto Tahun 2014*. Skripsi. Poltekes Majapahit.

Hansen, S.H., Pedersen-Bjergaard, S. & Rasmussen, K.E. (2012). *Introduction to pharmaceutical chemical analysis*, England: John Wiley and Sons Ltd.

Husnawati, F. (2015). *Analisis faktor yang mempengaruhi tingkatan anemia pada ibu hamil di Puskesmas Sentolo II Kulon Progo*. Diperoleh dari http://opac.unisayogya.ac.id/209 /1/FARIDAH%20HUSNAWATI%20NASKAH%20PUBLIKASI.pdf

Kementrian Kesehatan Republik Indonesia. (2015) *Pusat data dan Informasi Kementrian Kesehatan RI: Hari Ibu*. Diperoleh dari http://www.depkes.go.id/resources/ download/ pusdatin/ infodatin/infodatin-ibu.pdf

Kementrian Kesehatan Republik Indonesia. (2015). *Profil kesehatan Indonesia tahun 2014*. Kemenkes RI: Jakarta

Kementrian Kesehatan Republik Indonesia. (2016). *Profil kesehatan Indonesia tahun 2015*. Kemenkes RI: Jakarta

Kim, H.N., Ren, W.X., Kim, J.S., et al. (2012). Fluorescent and colorimetric sensors for detection of lead, cadmium, and mercury ions. *Chemical Society Reviews,* 41: 3210-3244.

Kohl, S.K., Landmark, J.D., & Stickle, D.F. (2006). Demonstration of Absorbance Using Digital Color Image Analysis and Colored Solutions. *Journal of Chemical Education,* 83: 644.

Kompany-Zareh, M., Mansourian, M., & Ravaee, F. (2002). Simple method for colorimetric spot-test quantitative analysis of Fe(III) using a computer controlled hand-scanner. *Analytica Chimica Acta,* 471: 97-104.

Lima, M.B., Andrade, S.I.E., Barreto, I.S., et al. (2013). A digital image-based micro-flow-batch analyzer. *Microchemical Journal,* 106: 238-243.

McKinney, E., James, S., Murray, S., & Ashwill, J. (2009). *Maternal-child nursing (3rd ed.)*, Philadelpia, Saunders.

Manuaba, I.B.G. (2012). *Buku Ajar Pengantar Kuliah Teknik Operasi Obstetri dan Keluarga Berencana*. Jakarta: CV. Trans Info Media.

Neufeld, T., Biran, D., Popovtzer, R., et al. (2006). Genetically Engineered pfabA pfabR Bacteria: an Electrochemical Whole Cell Biosensor for Detection of Water Toxicity. *Analytical Chemistry,* 78: 4952-4956.

Nurdiati, D.S., Sumarni, S., Suyoko, X.X., Hakimi, M., & Winkvist, A. (2001). Impact of intestinal helminth infection on anaemia and iron status during pregnancy: A community based study in Indonesia. *Southeast Asian Journal of Tropical Medicine Public Health*, 32: 1-6.

Oncescu, V., O'Dell, D., & Erickson, D. (2013). Smartphone based health accessory for colorimetric detection of biomarkers in sweat and saliva. *Lab on a Chip,* 13: 3232-3238.

Riset Kesehatan Dasar. (2010). Laporan tahunan. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan tahun 2010.

United Nations: The Millenium Development Goals Report. 2011, New York: United Nations

Simkhada, B., Teijlingen, E., Porter, M., & Simkhada, P. (2008). Factors affecting the utilization of antenatal care in developing countries: A systematic review of the literature. *Journal of Advanced Nursing*, 61(3), 244-260.

Suega, K., Dharmayuda, T. G., Sutarga, I. M., & Bakta, I. M. (2002). Iron-deficiency anemia in pregnant women in Bali, Indonesia: A profile of risk factors and epidemiology, *Southeast Asian Journal of Tropical Medicine Public Health*, 33(3), 604-607.

Park, K.S., Baumstark-Khan, C., Rettberg, P., et al. (2005). Immobilization as a technical possibility for long-term storage of bacterial biosensors. *Radiation Environmental Biophysics*, 44: 69-71.

Patanak, P. (2004). *Deans's analytical chemistry handbook*, second edition, New York, USA: The McGraw-Hill Companies.

Popovtzer, R., Neufeld, T., Biran, D., et al. (2005). Novel Integrated Electrochemical Nano-Biochip for Toxicity Detection in Water. *Nano Letters,* 5: 1023-1027.

Putri, P. H., Sulistiyono, A., & Mahmudah M. (2015). Analisis faktor yang mempengaruhi anemia pada kehamilan usia remaja. *Majalah Obstetri dan Ginekologi*, 23(1), 33-36.

Rodriguez-Mozaz, S., Lopez de Alda, M, & Barceló, D. (2006). Biosensors as useful tools for environmental analysis and monitoring. *Analytical and Bioanalytical Chemistry,* 386: 1025-1041.

Sousa, A. F. L., Carvalho, H. E. F.,…..et al. (2020). Effect of COVID-19 Infection during Pregnancy and Neonatal Prognosis: What is the Evidence?. International journal of Environmental Research and Public Health, 17, 4176.

Susilowati. (1993*). Anemia Pada Wanita Hamil dan Hubungannya Dengan Beberapa Faktor. Pusat Penelitian dan Pengembangan Gizi*, Depkes RI Bogor.

UNICEF Indonesia. (2013). *Kampanye "Surat untuk Teman" untuk Meningkatkan Kesehatan Ibu - ibu Hamil di Indonesia*. Diperoleh dari https://www.unicef.org/ indonesia/id/reallives_14029.html

Word Health Organization. (2001*). Iron deficiency anaemia: Assessment, prevention, and control*. Geneva: World Health Organization

Word Health Organization. (2015). *World health statistics 2015: World Health Organization*

Wuryanti, A. (2010). *Hubungan Anemia dalam Kehamilan dengan Perdarahan Postpartum karena Atonia Uteri di RSUD Wonogiri*. Skripsi. Universitas Sebelas Maret.

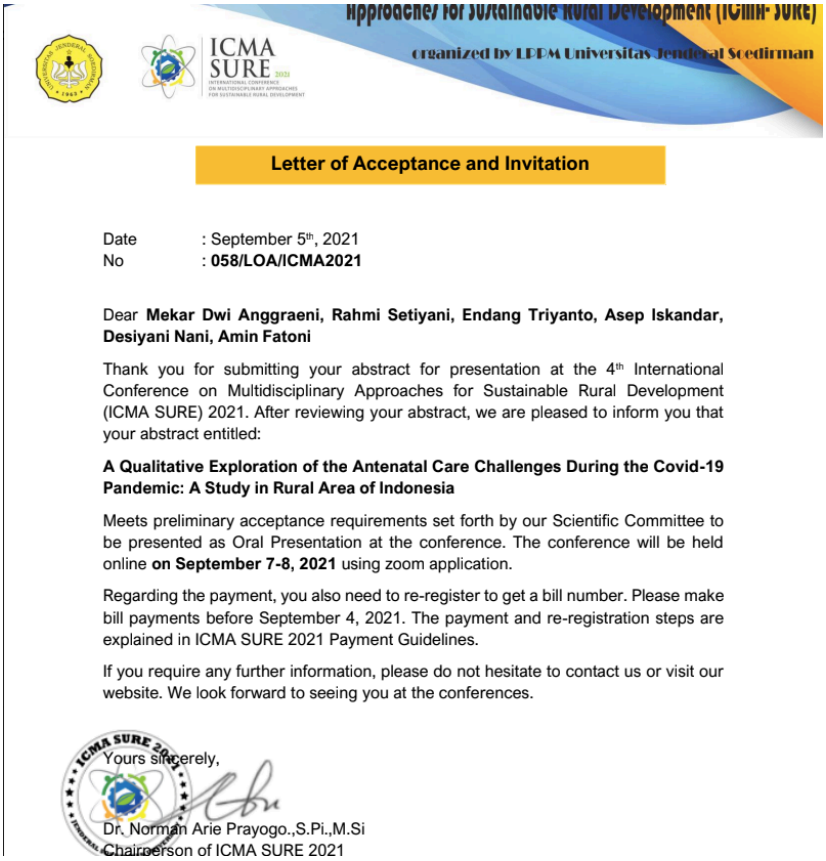
Yanti, D.A.M., Sulistianingsih, A., & Keisnawati.(2015) Faktor-faktor terjadinya anemia pada ibu primigravida di wilayah kerja Puskesmas Pringsewu Lampung. *Jurnal Keperawatan*, 6:82.

Yuan, J., Gaponik, N., & Eychmüller, A. (2012). Application of Polymer Quantum Dot-Enzyme Hybrids in the Biosensor Development and Test Paper Fabrication. *Analytical Chemistry*, 84: 5047-5052.

Zhai, J., Yong, D., Li, J., et al. (2013). A novel colorimetric biosensor for monitoring and detecting acute toxicity in water. *Analyst,* 138: 702-707.

LAMPIRAN

Bukti submit di ICMA-SURE 2021



Approaches for Sustainable Rural Development (ICMA-SURE)

Organized by LPPM Universitas Jenderal Soedirman

Letter of Acceptance and Invitation

Date : September 5th, 2021
No : **058/LOA/ICMA2021**

Dear **Mekar Dwi Anggraeni, Rahmi Setiyani, Endang Triyanto, Asep Iskandar, Desiyani Nani, Amin Fatoni**

Thank you for submitting your abstract for presentation at the 4th International Conference on Multidisciplinary Approaches for Sustainable Rural Development (ICMA SURE) 2021. After reviewing your abstract, we are pleased to inform you that your abstract entitled:

A Qualitative Exploration of the Antenatal Care Challenges During the Covid-19 Pandemic: A Study in Rural Area of Indonesia

Meets preliminary acceptance requirements set forth by our Scientific Committee to be presented as Oral Presentation at the conference. The conference will be held online **on September 7-8, 2021** using zoom application.

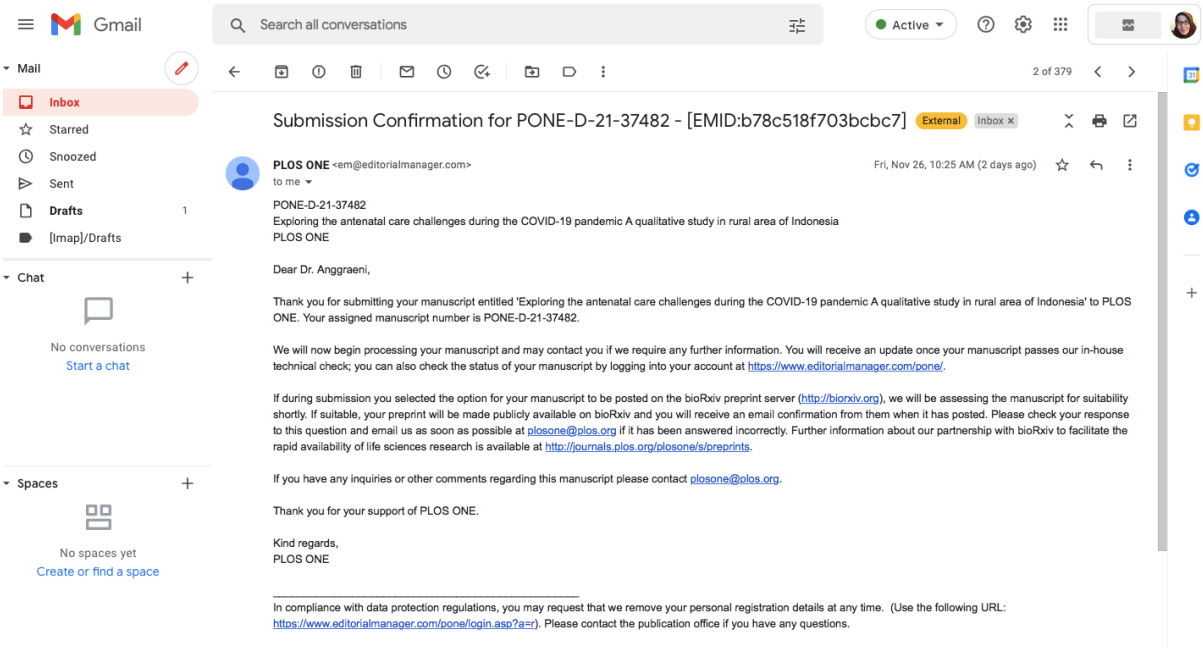
Regarding the payment, you also need to re-register to get a bill number. Please make bill payments before September 4, 2021. The payment and re-registration steps are explained in ICMA SURE 2021 Payment Guidelines.

If you require any further information, please do not hesitate to contact us or visit our website. We look forward to seeing you at the conferences.

Yours sincerely,

Dr. Norman Arie Prayogo.,S.Pi.,M.Si
Chairperson of ICMA SURE 2021

Bukti submit di jurnal Plos One



Gmail — Search all conversations — Active

Mail — Inbox — Starred — Snoozed — Sent — Drafts 1 — [Imap]/Drafts

Chat — No conversations — Start a chat

Spaces — No spaces yet — Create or find a space

2 of 379

Submission Confirmation for PONE-D-21-37482 - [EMID:b78c518f703bcbc7] External Inbox ×

PLOS ONE <em@editorialmanager.com> Fri, Nov 26, 10:25 AM (2 days ago)
to me

PONE-D-21-37482
Exploring the antenatal care challenges during the COVID-19 pandemic A qualitative study in rural area of Indonesia
PLOS ONE

Dear Dr. Anggraeni,

Thank you for submitting your manuscript entitled 'Exploring the antenatal care challenges during the COVID-19 pandemic A qualitative study in rural area of Indonesia' to PLOS ONE. Your assigned manuscript number is PONE-D-21-37482.

We will now begin processing your manuscript and may contact you if we require any further information. You will receive an update once your manuscript passes our in-house technical check; you can also check the status of your manuscript by logging into your account at https://www.editorialmanager.com/pone/.

If during submission you selected the option for your manuscript to be posted on the bioRxiv preprint server (http://biorxiv.org), we will be assessing the manuscript for suitability shortly. If suitable, your preprint will be made publicly available on bioRxiv and you will receive an email confirmation from them when it has posted. Please check your response to this question and email us as soon as possible at plosone@plos.org if it has been answered incorrectly. Further information about our partnership with bioRxiv to facilitate the rapid availability of life sciences research is available at http://journals.plos.org/plosone/s/preprints.

If you have any inquiries or other comments regarding this manuscript please contact plosone@plos.org.

Thank you for your support of PLOS ONE.

Kind regards,
PLOS ONE

In compliance with data protection regulations, you may request that we remove your personal registration details at any time. (Use the following URL: https://www.editorialmanager.com/pone/login.asp?a=r). Please contact the publication office if you have any questions.

Draft artikel publikasi

Exploring the antenatal care challenges during the COVID-19 pandemic: A qualitative study in rural area of Indonesia

Mekar Dwi Anggraeni[1], Rahmi Setiyani[1], Endang Triyanto[1], Asep Iskandar[1], Desiyani Nani[1], Amin Fatoni[2]

[1]Nursing Department, Faculty of Health Sciences, Universitas Jenderal Soedirman
[2]Chemistry Department, Faculty of Sciences, Universitas Jenderal Soedirman
Corresponding author: mekar.anggraeni@unsoed.ac.id

Abstract

Background

COVID-19 pandemic affects almost all health care services, including antenatal care (ANC). Pregnant woman is one of vulnerable groups during the COVID-19 pandemic and should undertake ANC visits during pregnancy due to the benefits of ANC. Yet, challenges antenatal care in rural area of Indonesia during the COVID-19 pandemic are not sufficiently explored. This study explored the antenatal care challenges during the COVID-19 pandemic in rural area of Indonesia.

Methods

This was a qualitative study, involved 31 participants consist of pregnant women and health professionals whom selected using a purposive sampling method. Data collection were performed between March and August 2021. Data were collected using focus group discussions, in-depth interviews, and field notes, then, analyzed using a content analysis method.

Results

This study revealed five themes, including perceived risks (perceived vulnerability, perceived threat), perceived barriers (internal barriers, external barriers), getting social support (having extended family, sources of support, types of support), adopting health promotion behavior (precautionary actions, nutrition, social activity), and shifting in health care services (service modifications, quality assured, health care protocols, program adjustment).

Conclusion

Performing ANC during COVID-19 pandemic era is challenging, particularly among pregnant women living in rural area. Pregnant women perceived some risks and barriers to do antenatal care visits, however they had good social support and health promotion behavior in order to prevent the COVID-19 transmission. Health care providers make numerous program adjustment to provide high quality ANC during the COVID-19 pandemic.

Keywords: Antenatal care, COVID-19, Indonesia, pregnancy, rural area

Background

The Coronavirus [SARS-CoV-2] pandemic or COVID-19 was declared as an international public health problem (1). The COVID-19 cases spread massively to all regions of the South East Asia. The number of total COVID-19 confirmed cases and deaths in Indonesia up to September 3, 2021 were 4,116,890 and 134,930, respectively, which made Indonesia ranked 13 in term of total COVID-19 confirmed cases (2) (3). The COVID-19 pandemic has affected all live aspects in Indonesia, including health services routine, such as antenatal care (ANC). Pregnant woman is one of the vulnerable groups in the COVID-19 pandemic (4) however, pregnant women are encouraged to accomplish ANC during the COVID-19 pandemic due to the ANC benefits. The ANC coverage in Indonesia has decreased in the last two years. The ANC coverage among Indonesian pregnant women in 2018, 2019, 2020 were 88%, 88.5%, and 84.6% respectively (5-7). The decline in ANC coverage in Indonesia in 2020 might be due to the COVID-19 pandemic. Indonesian government launched the first case of COVID-19 in Indonesia at March 2, 2019. The Indonesian Obstetrics and Gynecologists Association announced 20% of MMR in Indonesia during since 2020 up to August 2021 was related to COVID-19 infection (8). A study in Brazil also found that 13.19% of maternal death in 2020 was caused by COVID-19 infection (9).

ANC is an essential activity should be accomplished during pregnancy. The aims of ANC are to assure that every pregnancy ends in the delivery of a healthy infant without undesirable effects on the health of pregnant women throughout health promotion, disease prevention, early detection, and management of complications and existing diseases (10). Pregnant women living in developing countries has less ANC attendance comparing to pregnant women in developed countries, particularly among pregnant women living in rural area which lack of health care providers and health facilities (11) Irregular antenatal care attendance causes potential complications during pregnancy, delivery, and puerperium for both mother and infant, such as preeclampsia, eclampsia, anemia, preterm birth, low birth weight, and stillbirth (12). Pregnancy may cause some diseases development such as pregnancy induced hypertension, diabetes gestational, pre-eclampsia, and eclampsia (13).

The majority of pregnant women mortality due to COVID-19 infection identified as pregnant women with and without comorbid diseases during their pregnancy. Previous stuies confirmed that the effect of COVID-19 infection to pregnant women may causes severe outcome such as abortion (14) increase maternal morbidity and mortality, pre-eclampsia, and preterm birth (15). Another study in India found that the number of deliveries in institutional hospital reduced 45.1%, high risk pregnancy increased 7.2%, admission to intensive care unit

raise 2.5-fold, and one-third of pregnant women had inadequate antenatal visits during the COVID-19 pandemic. The principal reasons for delayed health-seeking behavior were lockdown and fear the COVID-19 infection transmission in health care center, resulting in 44.7% of pregnancies with complication in India (16). Previous study found that access and continuity of prenatal care, particularly to conduct early detection of the COVID-19 symptoms is highly recommended (17) because pregnant women experience a relative immunodeficiency and it makes worsen the clinical COVID 19 infection and lead to bad outcomes in the mothers and fetus (18). Therefore, ANC visit is important to be accomplished in order to screen pregnancy related health problems which may cause of COVID-19 infection worsening among pregnant women.

Attending ANC during the COVID-19 pandemic in rural area is more challenging. A recent study in India found that of 144 pregnant women, two third reported at least one barrier, one third reported fear, and more than three fourth did not accept ultrasounds assessment and blood tests during the COVID-19 pandemic (19). Several barriers to ANC during the COVID-19 pandemic were identified. They were health facilities, poor quality of care, government regulations against COVID-19, anxiety, and risk of infection minimization (20). lack of income, lack of transportation facilities, closing hospital/health care center due to the COVID-19 situation, fear of getting infected COVID-19, fear did not receive appropriate care, fear of coming back from hospital, and fear of social isolation from other family members. Pregnant women from low socio-economic class and had pre-existing pregnancy complications were more likely to have barriers attending ANC (19). A little is known regarding the antenatal care challenges during the COVID-19 pandemic in Indonesia, particularly in rural area from pregnant women and health care provider's perspectives using a qualitative approach. This study aimed to understand more the challenges of pregnant women and health care providers in performing antenatal care during the COVID-19 pandemic, their difficulties, facilitators, and adaptation during the COVID-19 pandemic. The knowledge provided in this research could be used to develop safety ANC programs for pregnant women living in rural area during the COVID-19 pandemic.

Methods

Study design and setting

A qualitative method with a conventional content analysis approach was used to conduct this study. The qualitative method emphasizes deep understanding, complexity, and details of the phenomena under study, and the researcher is actively involved in the research

process. In conventional content analysis, most of the data are obtained through interviews. Iinterviews with individuals allow us to understand the experiences and perceptions of the participants and obtain richer data from their experiences (21). Qualitative exploratory descriptive design was used in conducting this study. Qualitative exploratory descriptive design was found to be useful in exploring challenges of antenatal care during the COVID-19 pandemic. The design enabled researchers in this study to have in-depth understanding into challenges of antenatal care by pregnant women and health care providers in the rural area of Indonesia. The study was reported using the COREQ criteria for reporting qualitative research (22).

Indonesia is a country with highest population in South East Asia. The biggest ethnicity is Javanese which counted around 40% of total population whom the majority live in rural area. Data were collected in Central Java Province which the majority of population is Javanese in order to have an in-depth understanding into challenges of antenatal care during COVID-19 pandemic living in rural area. The study was conducted from April to August 2021. The majority of pregnant women conducted ANC in Primary Health Center.

Population and sampling

The population in this study are pregnant women and health care providers whom living in rural area. A purposive sampling technique was used in selecting the study participants. The inclusion criteria of pregnant women in this study were trimester two or three, had visited Primary Health Center to conduct ANC, and had at least three ANC attendance. Only pregnant women who had visited the PHC during the data collection period were involved in study. Participants were recruited through the PHC list of pregnant women whom met the inclusion criteria. A short message was sent to pregnant women requesting their participation in study. Pregnant women who indicated their willingness to participate in this study and met inclusion criteria were invited for data collection. Pregnant women who had high risk pregnancy were excluded from study. The inclusion criteria of health care providers were work in PHC, had at least three years' experience, and provide ANC. The health care providers were selected purposively and sent a formal invitation letter to participate in the study. A total of 31 participants who agreed to participate in the study were invited to conduct FGD and in-depth interview.

Data collection procedure

Data collection was started after receiving the code of ethics from IRB Faculty of Medicine, Universitas Jenderal Soedirman. Data were collected by the researchers who are faculty members in Nursing Department, Faculty of Health Sciences, Universitas Jenderal

Soedirman, the majority are Javanese ethnicity, familiar with the principles of qualitative research, and using an interview guideline. The researchers selected prospective participants by considering the diversity of social, economic, and demographic characteristics (such as age, level of education, employment status, and parity) for pregnant women and length of working experiences for health care providers. The greater diversity of the study participants provides for a more in-depth exploration and analysis of the phenomena. In order to adhere the Declaration of Helsinski for study involving human subject and ethical issues, participants in this study were informed of the study's purpose, procedure, risks, and their voluntary involvement without any consequences if they want to quit from this study anytime. The participants who choose to withdraw from the study will receive ANC in PHC as usual. The researchers also guarantee for their confidentiality and anonymity of their information.

Two FGDs were conducted in this study, consisting of 12 members in first FGD and 9 members in second FGD. The study was conducted from March to August 2021. Only two FGDs were possible as the situation of COVID-19 during July 2021 in Indonesia getting worst so the data collection method was switched into in-depth interview conducted through social media and online interviewing to prevent transmission of COVID-19 via close contact and follow the Indonesia Government regulation about quarantine restrictions in Java Island. Then, the researchers used WhatsApp video call to conduct ten in-depth interviews. The researchers provided an electronic informed consent form before starting the interviews. The researchers send a hard copy of informed consent to participants whom find difficulty to fill out the electronic informed consent. The researchers let the participants know that the interviews were recorded and transcribed verbatim.

Information related to demographic characteristics was collected before FGD started. All of the discussion and interview were audio recorded for further verbatim transcription. During the FGD, the researchers encourage all the participants to share their knowledge, feeling, and experience to conduct ANC during the COVID-19 pandemic. In addition, a researcher observed and took notes to supplement the audio recorded FGDs. The ANC facility observation data were reported as a narrative data based on the observation results in PHC, and its environment was also written up. The observations data were used to confirm the results from FGDs and in-depth interviews in order to enrich the data. Only the researchers and participants attended the FGDs session to ensure the participant's information confidentiality and privacy.

FGD was conducted in the Indonesian language using the interview guideline by the researcher whom expert in community health nursing and familiar with FGD process. The

researcher who leading the FGD had a doctoral degree in community health with experience in qualitative research. The first FGD was conducted in the meeting room within PHC and the second FGD was conducted in the meeting room of the Sub-District Government Office. An initial introduction between the participants and the researchers was performed before the FGD session. In qualitative study, data saturation reach when the extension of interviews does not deliver new data and all founded codes are recurrent (23). In this study, the saturation was achieved in the 31th participant, then the researchers decided to end the data collection. As a result, there were 31 participants were involved in this study consist of 10 individuals and two focus groups. Each interview and FGD in this study lasted around 60 and 90 min, respectively.

Research instrument

Data were collected throughout a semi-structured interview guideline based on the empirical literature review on ANC in the COVID-19 pandemic situation. A panel of experts, consisted of a maternity nurse and two lecturers from Maternity Nursing Department, was asked to review the interview guideline for its relevance with study purpose. The interview guideline also was verified for its clearness to three pregnant women. The FGDs and in-depth interviews used an open-ended question. Probes were used to elicit further descriptions of challenges and experiences.

Data analysis

Data were analyzed using a thematic content analysis method (24). Data analysis was conducted with qualitative content analysis. In this study, two researchers analyzed the data independently. Firstly, the data were transcribed the next day after collected by the assistance of researchers and analyzed by the second and third author. Data collection and data analysis were conducted simultaneously. Secondly, the transcribed verbatim was carefully read and re-read by the researchers to be familiar with the data before go interview to the next participant. Thirdly, all of the transcribed verbatim were carefully and precisely examined line by line to find initial codes. Data was cleaned by eliminating all distinguishable info. In the fourth stage, the researchers categorized codes which had associated meanings into one group and considered their significance. Finally, all of codes and categories were located in the central categories which called sub-themes and themes. All of the research team members discussed on the coding, categories, sub-themes, and themes which well organized into charts for agreement. Some participants were requested to read the study results and provided opportunity to give any feedback and to find out if themes showed their views. The research team discussed the final themes emerge in this study. The study report follows the consolidated criteria for

reporting qualitative research (COREQ) (22). The demographic characteristics of the participants were presented in frequency, percentage, median and minimum-maximum.

Trustworthiness

In order to assess the quality of the study data, the researchers used Lincoln and Guba's trustworthiness criteria (23). The majority of researchers in this study were Javanese, native residents of the region under investigation in order to acquire the participants' trust and confidence and familiarity. The researchers involved pregnant women and health care providers from various age groups, parity, level of education, working status, and working experiences in order to identify different views and concepts (credibility). During the research, a qualitative research specialist observed data collection and processing and two qualitative researchers analyze the data independently. The data collection, data analysis, and theory generation process can be audited (dependability). The researchers attempted to avoid subjective prejudices by recording all FGDs and interviews, keeping the field notes, and avoiding to interfere the data analysis results (confirmability). Then, the study results were provided to participants and asked to confirm whether the results exactly reflected their experiences (transferability).

Rigour

The interview guideline was developed based on literature review on current ANC during the COVID-19 pandemic. The draft of interview guideline was modified based on the panel of experts and pregnant women's suggestions outside the study participants for its clearness. The researcher had working as maternity nursing for 12 years had had interaction with pregnant women to ensure depth understanding of study findings. Participants had opportunity to do member checking in order to validate data gathered from this study and asked for their opinions regarding the themes. All research team read and discussed the data to confirm the right data were reported. Three researchers in this study had experience to conduct and publish qualitative study further help to ensure the rigor of qualitative research in this study.

Ethical consideration

Ethical approval for this study was granted by the Institutional Review Board of Medical Faculty, Universitas Jenderal Soedirman No 1204/KEPK/III/2017. Permissions were also required from district assemblies and Ministry of Health where data were collected.

The researchers explained about the research purposes, procedures, risks, participants' expected role, and the voluntary of participation in this study. Participants were also informed that they can decline from this study anytime and would not affect any health care services received by them. Informed consent forms were filled and signed by participants before data

collection. A written or electronic informed consent was obtained before involvement in the study and agreement to audio record the discussion or in-depth conversation was taken. All participants' data were documented with codes to guarantee anonymity and only the research team can access the research data to ensure confidentiality.

Results

Demographic data of participants

The median age of the participants was 32 years (SD) ranging from 19 to 52 years old. In our study, two third of participants were multiparous, half of participants were housewives, and one third of participants graduated from Junior High School.

Table 2. The participant's demographic data

Variables	Frequency (%)	Median (Min-Max)
Sex		
Male	1 (3.22%)	
Female	30 (96.78%)	
Age (years)		31 (19-52)
<20	1 (3.22%)	
20-35	19 (61.29%)	
> 35	11 (35.49%)	
Parity		
Primiparous	8 (26.67%)	
Multiparous	22 (73.33%)	
Occupation		
Seller	1 (3.22%)	
Teacher	1 (3.22%)	
Housewives	15 (48.36%)	
Private employee	6 (19.33%)	
Government employee	2 (6.44%)	
Health care provider	6 (19.33%)	
Education		
Elementary School	3 (9.67%)	
Junior High School	6 (19.35%)	
Senior High School	10 (32.26%)	
University	12 (38.72%)	

Themes

This study revealed five themes, including perceived risks, perceived barriers, getting support, adopting health promotion behavior, and shifting in health care services. Each themes are described below, with added subthemes and descriptive quotes in each subtheme. The explanation was complemented by findings from the field notes which acquired from observations at the Primary Health Centers.

Table 3. Summary of themes and sub-themes from the transcribed data

Themes	Sub-themes
1. Perceived risks	Perceived vulnerability

	Perceived threat
2. Perceived barriers	Internal barriers
	External barriers
3. Getting support	Having extended family
	Sources of support
	Types of support
4. Adopting health promotion behavior	Precautionary actions
	Nutrition concern
	Social activities restriction
5. Shifting in health care services	Service modifications
	Quality assured
	Health care protocols
	Program adjustments

1. Perceived risks

This theme is comprised of two subthemes, including perceived vulnerability and perceived threat.

Perceived vulnerability

Almost all of participants stated that the pandemic situation makes them feel anxious because they are a vulnerable group which should be protected either at home or in the working office. Their interactions with others people outside home make them feel insecure. However, participants said that they feel grateful and happy with their pregnancy.

> …I very worried since I am pregnant…my office colleague was confirmed COVID-19 so I feel very anxious…I quickly do an antigen swab…if I am not pregnant I might not be that panicked...(R8, Multiparous, 34 years old)

The participants also mentioned that they feel bit anxious as they may at risk of getting COVID-19. They are worried about their health condition because of immunity decreasing during pregnancy and visiting health care facilities to have ANC or others health problems.

> …I feel fear because I pregnant in the pandemic which my immune system is weak during pregnancy…(R4, Primiparous, 26 years old)
>
> …I am scared because the COVID-19 spread very quickly, I feel fear when I go to the PHC to do ANC or take my child due to fever…(R13, Multiparous, 23 years old)

Another participant expressed that she had mixed feeling to get pregnant during this time. She had a grateful and anxious at the same time because she waiting for this pregnancy for long time. However, her pregnancy happens at COVID-19 pandemic which make her anxiety to get COVID-19 infection because of her immunity status is decreasing.

> …I'm grateful and happy for my first pregnancy after waiting for a long time…however I also anxious because I get pregnancy during the COVID-19 pandemic…(R16, Multiparous, 34 years old)

Perceived threat

Some participants mentioned that the COVID-19 pandemic make them feel threatened because of the fast and easy virus transmission. They also feel threatened because they see news of the death of pregnant women caused by the COVID-19 virus increasing significantly.

> ...I feel afraid if I infected of the COVID-19 as the virus transmission is vastly and easily, I worry to my health status especially my fetus health in the womb...(R3, Multiparous, 39 years old)
> …I feel very scared because the COVID-19 is very dangerous especially for pregnant women…I see in the news, a lot of pregnant women die due to the COVID-19 infection…(R15, Primiparous, 23 years old)

2. Perceived barriers

This theme is comprised of two subthemes, including internal barriers and external barriers.

Internal barriers

Participants explained that the COVID-19 pandemic make several barriers to do their daily activities. The Indonesia government regulation encourage people to stay at home, particularly among the vulnerable groups make participants feel bored and faced difficulties to do some activities outside home. Participants mentioned that they miss pre-COVID-19 pandemic era which they feel free to visit their parents and meet other family members. Having a close relationship among family members are common life style in the rural area of Indonesia.

> …I feel really bored during the COVID-19 pandemic because I have to stay at home all day for very long time…(R23, Multiparous, 36 years old)
> …I find difficulty to go outside during the COVID-19 pandemic…this situation makes me feel lazy… I really want to go to my parents' house…(R9, Primiparous, 24 years old)

External barriers

Some participants explained additional challenges during the COVID-19 pandemic. They mentioned that they live with other vulnerable groups such as elderly, children, and comorbid people. This situation makes participants to take care of herself, her parents or children extra carefully. Some participants mentioned that their activities while working outside home increase the chance of being infected with COVID-19.

> ...I have to increase infection precaution practices because my parents have comorbidities, so we have to take care each other…moreover, I have some children, their age are 6 years old, 5 years old, and 3 years old...(R6, Multiparous, 42 years old)

Participants whom working outside home stated that they should combining working duties and pregnancy status during the COVID-19 pandemic. Participant struggling to combine between the COVID-19 prevention, pregnancy care, and work duties.

> ...I am a working mother and sometimes I have to do field work, my husband and my mother said you should not do the filed job however, that is my duty so I have to do field job carefully riding motorbike by my self...(R20, Multiparous, 29 years old)

3. Getting support

This theme is comprised of three subthemes, including having extended family, sources of support, and types support.

Having extended family

Living in extended family is common among Indonesian. Some participants living with their parents whom have comorbid disease. Participants explained that this environment makes them taking care each other and make a mutual support in order to prevent COVID-19 transmission among them in the family cluster.

> …I live with my father and he is sick, so I have to do infection precautions strictly…I always wash my hands while just arrived home…we take care and support each other...(R11, Primiparous, 22 years old)

Sources of support

Living in the rural area makes participants getting closer with their family members, particularly their husband, parents, and parents in law. Almost all participants received support from their husband, parents, parents in law, and others family members during the COVID-19 pandemic. Participants explained that their supportive people give more attention to them and provide a lot of restrictions during the COVID-19 pandemic to prevent of being infected.

> ...My parents and my husband very worry about my health status, they always ask me where are going…my family always remind me to take care myself and limit my mobility…(R17, Primiparous, 27 years old)

Types of support

Participants mentioned that their husband and other family members always support them continuously. The types of support are emotional, informational, appraisal, and instrumental support. Participants explained that they should limit their social activities and non-essential mobilization, which are not easy for those living in the rural area.

> …my husband also often tells me about the COVID-19 prevention, buy mask and sanitizer, and vitamin to protect me from being infected…he also ask me to stay at home and do not go to crowds…he became more attentive to me and make me feel comfort at home...(R21, Multiparous, 32 years old)

4. Adopting health promotion behavior

This theme is comprised of three subthemes, including precautionary actions, nutrition concern, and social activities restriction.

Precautionary actions

Participants in this study described that they should make some adaptations during the COVID-19 pandemic. They practice precautionary actions such as stay at home, physical distancing, wearing mask, washing hands, bring hand sanitizer, taking shower, and changing clothes after going outside home.

> ...the point is to just take care of yourself in this pandemic...(R1, Multiparous, 31 years old)

> ...must keep distance, must less travelling...(R9, Primiparous, 24 years old)
> … the preparation at home such as wash your hands with a mask before going to the Puskesmas or to another clinic.... yes, bring it (handsanitizer)... yes, if you go, bring a hand sanitizer with that mask....keep your distance……(R24, Multiparous, 32 years old)
> ...when come back from outside, wash your hands, immediately change everything from bathing and all kinds of things. In the past, we can just get used to it... …(R15 , Primiparous, 23 years old)

Nutrition concern

Participants explained that they took some actions to improve body immune system during pandemic. They got information that COVID-19 virus may be fight by having a good immunity status. Most participants consumed more vegies, fruits, and high protein source food in order to increase their immune system and had a healthy pregnancy.

> …I need more nutrition because of my pregnancy…I need to consume more vitamin, particularly vitamin C to increase immunity…I always be supported to eat more veggies and fruits...(R18, Multiparous, 36 years old)

Social activity restriction

Almost all of participants explained that they had social activity restrictions during the COVID-19 pandemic. The majority of people whom living in rural area have several social activities, such as neighbor's meeting, religious meeting, praying together at the mosque, helping neighbors prepare for the wedding, etc. Participants were encouraged to stay at home and do not allowed to attend social activities which involve a lot of people in order to prevent the COVID-19 transmission.

> …My husband do not allow me to join social gathering, recitation and *yasinan*…I always attended the event regularly every month before the COVID-19 pandemic…(R6, Multiparous, 42 years old)
> ….since the COVID-19 pandemic, my husband ask me to do not pray together at the mosque because I met a lot of people there….(R17, Primiparous, 27 years old)

5. Shifting in health care services

This theme is comprised of four subthemes, including service modifications, quality assured, health care protocols, and program adjustment.

Service modifications

All of participants mentioned that some health services method had been changed during the COVID-19 pandemic. Participants explained that the health care protocols should be followed when they go to antenatal visits. The antenatal care service also had been modified to reduce the COVID-19 transmission risk between patient and health care provider such as antenatal care duration, distance, referral system, private midwifery clinic, high risk pregnancy, and home visits. Pregnant women received less detailed information regarding their pregnancy assessment results.

> …we usually do several antenatal examination include some physically checks, measures all things as stated in the Indonesia Ministry of Health guidance, however we just measure the blood pressure since the COVID-19 pandemic…we cannot assess pregnant women as detail as before the COVID-19 pandemic and did not explain the pregnant women and her fetus conditions specifically…we only give the most important information to pregnant women such as the fetus position, heartbeat, and estimation weight…I think that are the differences of ANC care between before and after the COVID-19 pandemic… (R29, Multiparous, 47 years old)

Health professionals explained that they spend less time in direct contact with patients during this COVID-19 pandemic. The antenatal assessment focus on patient's health problem and complaint, if there are no pregnancy complaints so they can delay ANC visit to minimize the risk of getting COVID-19. They also give less detailed information related to the fetal growth and development.

> …at the beginning of the COVID-19 pandemic, we often educate pregnant women to stay at home, do not go to health care facilities if there is no health problem and we do home visit... but now we are getting tired too…currently, pregnant women come to the PHC although they have no any health problems related to pregnancy because they want to know their fetus health status…(R27, Multiparous, 32 years old)
>
> …pregnant women come to PHC because they have health problem such as their teeth becoming sick…we do home visit only for high risk pregnant women...(R31, Multiparous, 51 years old)
>
> …we do the pregnancy examination in a short duration and just focus on the important things…(R28, Multiparous, 42 years old)

Participants mentioned that the ANC assessment duration and discussion session were short. They had no chance to express their feeling and ask some questions related to their pregnancy.

> …when I have ultrasound examination, the doctor did not explained the results in detail…he just say that it's good and normal, the doctor didn't give me the opportunity to express my feeling or ask some questions…(R10, Multiparous, 33 years old)

Health professionals mentioned that they suggest the pregnant women to use nearest health service post or midwives private services in their village and reduce inappropriate referral to hospital in order to prevent the COVID-19 transmission.

> ...If there are no health problems, we suggest pregnant women to do ANC in the village midwife practice, so pregnant women who come from far away do not need to conduct ANC in PHC in order to minimize mobilization and contact with a lot of people because just a few pregnant women do ANC at the village midwife... (R27, Multiparous, 32 years old)
>
> ...we reduce the number of ANC or childbirth referral to hospital…pregnant women advised to perform ANC as scheduled…we also encourage pregnant women to do ANC at the nearest midwife clinic…(R26, Male, 52 years old)

Quality assured

Almost all participants explained that they feel satisfied with care services provided by health professionals during pandemic. Although there were some restrictions during the COVID-19 pandemic, participants stated that the quality of antenatal care service is satisfied.

The health care provider also reported that they always provide a good quality antenatal care to pregnant mothers during the COVID-19 pandemic.

> … I satisfied with the quality of ANC service in PHC….(R28, Multiparous, 34 years old)
> … So far, the ANC service is enough for me....(R14, Primiparous, 22 years old)
> …The ANC services for pregnant women during this COVID-19 pandemic still running as usual….(R29, Multiparous, 47 years old)

Health care protocols

All participants said that they have to adhere health protocols when going outside home. They always wear mask, washing hands, and physical distancing when doing ANC. Health care providers confirmed that there is a big banner in front of the Primary Health Center to inform patients about health care protocols. They always remind patient to follow health care protocols and they admonishment patients who do not comply with health protocols. All participant stated that they applying the COVID-19 health protocols (wearing mask, washing hands, physical distancing)

> ….we provide health care services in the PHC using a high standard of the COVID-19 precautions… we always remind patients and their families who come to PHC to wear mask, make a physical distancing at least 2 meters, and wash our hands using water and soap before and after entering the PHC...(R26, Male, 52 years old)

New procedures

All of participants described new procedure on ANC, birth, and postnatal. Health care providers confirmed the perinatal care procedures had been changed in order to prevent the COVID-19 transmission. Health care providers apply new procedures for pregnancy checking and delivery during pandemic such as early screening, separating healthy and suspected pregnant women, seating/ room arrangement and wearing PPE (personal protective equipment).

> ...we provide ANC service as usual however, we have a strict health protocols such as screening the pregnant women's temperature, assess their symptoms such as having cough, cold, or travelling…the pregnant women can go directly to obstetric examination polyclinic…pregnant women who have symptoms such as coughs and colds will be placed in the isolation room by security guard…(R27, Multiparous, 32 years old)
> …there is health screening for pregnant women before entering the PHC, pregnant women can enter the examination room when they pass the screening check list, we help the administrative process so they do not need meet a lot of people in the waiting room…if pregnant women have some symptoms such as fever, colds, or cough, then we put them into the isolation room…R31, Multiparous, 51 years old)

Health care providers also explained that they applying new procedures for the delivery process in the PHC. They performed early screening, using isolation room for normal pregnant women with COVID-19, separating the non-COVID-19 women, assisting the confirmed COVID-19 patient delivery process, care coordination with the village midwife, wearing hazmat while assisting the delivery process, and only refer women with pathological pregnancies to hospital.

…. we have a special isolation room for childbirth, so if a pregnant women comes to PHC, why do some assessment such as travel history, pregnant women who have a travel history directly go to the isolation room…we do not care pregnant women without travel history or cold symptoms together with those who have symptoms….we also wear appropriate PPE to help childbirth of both symptomatic and asymptomatic women...(R27, Multiparous, 32 years old)

…We experienced helped childbirth of confirmed COVID-19 women twice…we use hazmat during the delivery process…we suggest confirmed COVID-19 pregnant women to inform the village midwife when they have true childbirth signs the village midwife will contact the PHC to prepare isolation room and wear hazmat…we help confirmed COVID-19 patient to give birth here as long as they do not have emergency or pathologic condition…(R29, Multiparous, 47 years old)

Health care providers also explained that they applying new procedures for the post delivery process in the PHC. They use isolation room, separate the baby with mother after birth, limit the visitors, and separate the waiting room for families.

…We always open the window after finish delivery process…we have experience help some confirmed COVID-19 patients and all health care providers stay healthy until now...(R30, Multiparous, 42 years old)

…. We separate confirmed COVID-19 postpartum mother with her newborn…all newborn from confirmed COVID-19 woman is healthy…we also limit the number of visitors and separate the waiting room for confirmed COVID-19 families...(R28, Multiparous, 42 years old)

Antenatal class program adjustment

Pregnancy class (antenatal health education program) held by Primary Health Care is still running during this pandemic. Half of participants, including those who had comorbid, said that they had pregnancy class during the COVID-19. Some participants mentioned that they do not join the pregnancy class because the limitation number of participants. The health care providers confirmed that the pregnancy class was modified by limiting the number of participants in each meeting by using policy invited participants only and applying strict health care protocols during the pregnancy class.

…Pregnancy class is still running until now with a strict health protocols...(R23, Multiparous, 36 years old)

…The pregnancy class conducted once a month and limited to only 10 pregnant women in a village…we only invited high risk pregnant women to take pregnancy class because of the restrictions during the COVID-19 pandemic, we are trying to provide pregnancy class for all pregnant women…(R29, Multiparous,47 years old)

…Only invited pregnant women can attend the class now…all pregnant women may join the pregnancy class before the COVID-19 pandemic….(R28, Multiparous, 42 years old)

Health care providers explained that they modify the implementation of pregnancy training class program during this pandemic. The modifications aimed to prevent the COVID-19 transmission among pregnant women. The program adjustment were limiting the number of participants, applying the COVID-19 health protocols, limiting the number of participants (by invitation), applying the COVID-19 health protocols, limiting the duration of meeting.

…We still have pregnancy class program in the community…the number of invited pregnant women is limited due to the distance among pregnant women consideration. We also reduce the number of pregnancy class from 12 to 8 meetings due to uncertain COVID-19 transmission….we always apply health protocols during pregnancy class such as wear mask, wash hands, and keep physical distancing…. (R27, Multiparous, 32 years old)

...Pregnancy class program have been accomplished each months with number of participants limitation…we invite 6 to 10 high risk pregnant women to join the class…we also regulate the pregnancy class duration and apply high standard of the COVID-19 transmission precautions...(R31, Multiparous, 51 years old)

Discussion

Up to the author's knowledge, this is the first Indonesian study that investigated the pregnant mothers and health care providers challenging to conduct ANC during the COVID-19 pandemic. Despite challenges and restrictions during the COVID-19 pandemic, ANC services have had to continue providing a full range of services to the pregnant population. Some services are modified in order to provide not only high quality ANC service but also prevent the COVID-19 transmission (25). In addition, the number of ANC visit decrease during the COVID-19 pandemic particularly among pregnant women in rural area (25). Pregnant women living in rural area significantly correlated with the low utilization of ANC service (26). This might due to transportation problems, distance from health facilities, financial problems, and lack of awareness about the ANC benefits.

This study finding proved that the majority of pregnant women feel fear and anxious due to the COVID-19 transmission. Pregnant woman is a vulnerable group whom increase the probability to get worsening when infected the COVID-19 since the change of the maternal immune responses and increasing the sensitivity to respiratory pathogens (18). The majority of Indonesian pregnant women in this study attended ANC in PHC however, they feel fear of the COVID-19 transmission in the health care center. Similarly, previous studies found that pregnant women during the COVID-19 missed ANC visits and feel fear to give birth in health facilities since afraid themselves or their infants infected in health facilities (27), desired to do pregnancy self-monitor but have no sufficient knowledge, perceived have to strictly isolated at home, and expected pregnancy consultation using telemedicine (28). Fear was the most important factor of maternal care reduction during the COVID-19 pandemic and Israeli women feel threat with the COVID-19 transmission in health care center so they refute to visit the health care center for ANC (29). A large survey finding revealed that greater anxiety experienced by pregnant women particularly related to family visit post-delivery restriction, the possibility of baby being infected, lack of support during delivery, and delivery plan

changing (30). Anxiety related to the COVID-19 transmission also experienced by workers in Finland particularly among women and young people (31). Unsurprisingly, the combination of pregnancy and working status increase the anxiety of getting infected among Indonesian working women whom get pregnancy during the COVID-19 pandemic.

Indonesian pregnant women explained that they not only feel bored to stay at home for long time but also fear to spread the virus to others family members whom have comorbid diseases since the majority of them live in extended family. Pregnant women in Iran also experienced unpleasant feeling due to several restrictions during the COVID-19 pandemic such as fear, obsession, boredom, nervousness, and despair (32). Having an extended family is common for people living in the rural area of Indonesia. Fear of COVID-19 transmission may be caused low adherence to health care protocols among people live in the rural area. Urban residents experienced that it easier to share knowledge about COVID-19 (33), advised others to do preventive behaviors compare to rural residents (33) in addition rural residents were more likely to have negative attitude of doing preventive behaviors, and had lower levels of information evaluation abilities (34). The low adherence of COVID-19 preventive behaviors among people in rural area might be due to low health literacy and lack of COVID-19 preventive information from social media. One study did find that people who had adequate knowledge about COVID-19 were more likely to perform appropriate preventive behavior and urban residents were more likely to practice good preventive behavior compare to rural residents. In addition, people use of social media as a source of COVID-19 information were more likely to have proper preventive behavior (35). In contrast, a study among older adults in Thailand showed that rural residents had better knowledge and preventive behaviors compare to urban residents, they got the COVID-19 related information from the village health volunteers (36). It might due to the capability of village health volunteers to use a clear and simple way to deliver the COVID-19 related information using the local community wisdom.

Our findings also illustrated that pregnant women received support from their significant others during the COVID-19 pandemic. The Indonesian government has made regulations to limit non-essential mobilization and activities that have the potential to cause crowds in order to prevent the spread of COVID-19 (37). Having close relationship between extended family members is a characteristic of people living in a rural area. They help, take care, and support each other. During the COVID-19 pandemic, pregnant women have a social contact limitation, they got social support from their husband and other family members. Social support from family members, friends, and significant others contributed to protect and develop resilience among pregnant women, affect perinatal mental health, and obstetric outcomes (38).

Having a lot of social activities is part of daily life of people living in the rural area of Indonesia. They commonly go to their neighborhood's home, prayer together in the mosque, coming to funeral, attending recitation, wedding ceremony, or social gathering. Pregnant women also reported that social supports were obstructed due to the restrictions during the pandemic, resulting in feeling isolated in their societies (39).

For health promotion behavior, participants in this study mentioned that they made some lifestyle changing during the COVID-19 pandemic due to fear to be infected. Good preventive practice of COVID-19 among pregnant women was found to be were significantly associated with fear of becoming infected and having good knowledge about the COVID-19 preventive behavior (40). Pregnant women are a vulnerable group due to hormone levels fluctuation which involved immune response, so they have to rigorously implement prevention from the COVID-19 infection practices such as wearing masks, handwashing using water and soap, physical distancing. In addition, a healthy, adequate, and high quality of food intake which contain sufficient energy, protein, calcium, iron, folic acid, choline, omega-3 fatty acids, and vitamin D are needed (41). Micronutrients deficiencies and poor micronutrients intake may infer immune system and increase complications among pregnant women infected COVID-19. The essential micronutrients for immunocompetency were vitamin A, C, D, E, iron (Fe), selenium (Se), and zinc (Zn) which play an important role to increase immune function and pregnancy outcomes since micronutrients as an immune booster to prevent pregnancy complications among COVID-19 infected women (42).

Related to the ANC program modifications during the COVID-19 pandemic, our participants highlighted that the health care providers deliver essential services, high risk pregnancy early detection, emergency services, and prevention the COVID-10 transmission among health care providers. The Ministry of Health launched the perinatal and newborn health service guideline to guide the health care providers in deliver their health care services, such as general precautions principals, health facilities readiness, perinatal care recommendations, and health services for maternal and newborn in new normal era (25). Health care providers in this study explained that they should re-arrange of ANC programs, limit prenatal examination duration, doing home visits, limit the number of prenatal class participants. The purpose of ANC program adjustments is to save both health care providers and pregnant women from the COVID-19 transmission particularly during the July 2021 when the COVID-19 daily cases in Indonesia reach the highest level of new cases and total cases (3). Consistent with a study in Kenya which reported that health care providers made some ANC program modifications such as decrease the ANC visitation to hospital and increase networking between community health

workers and communities (43). The qualitative findings of this study further illustrate that the COVID-19 precautions protocols, ANC adjustments, and pregnancy class modifications in PHC were satisfied, however fast pregnancy examination and reduction of time to discuss the pregnancy examination results should be take into consideration. Unsurprisingly, the maternal health services situation is more difficult for developing countries because lack of sufficient infrastructure and resources, health system collapse, workforce lessening, access decline, and number of ANC visits lessening in order to prevent pregnant women being infection COVID-19 (26). Pregnant women who stated dissatisfaction with maternity care services mostly associated with restrictions during the COVID-19 pandemic caused ANC visitation and pregnancy classes were cancelled, suspended or delivered through telemedicine (44).

Strengths of the study

A strength of this study is using open-ended questions providing a rich data for qualitative analysis. This study is still relevance with current situation in order to improve maternal health service in the pandemic era.

Limitations of study

The principal limitations of this study was limited generalizability of the study findings, as all of our participants were Javanese ethnicity, married women, and attending ANC during the pandemic. These biases may reflect the level of pregnant women awareness to perform ANC during the pandemic. Further research would be required to examine barriers experienced by pregnant women who do not attend ANC during the pandemic and their perinatal outcomes.

Conclusion and recommendation

This study provides additional evidence that contributes to the growing body of research outlining the challenging antenatal care in the rural area during the COVID-19 pandemic. Our findings indicate maternal mental health should be take into consideration in the maternity services in response to the pandemic. Limited interactions with healthcare care providers should be recognized as in the next perinatal program using a social media platform.

Ethical statement

All procedures were approved by the Institutional Review Board Faculty of Medicine, Universitas Jenderal Soedirman.

Funding

This research is supported by the research grant from Universitas Jenderal Soedirman.

Author contributions

MDA conceptualized and designed the study, wrote and revised the final manuscript. RS analyzed the data and critically reviewed and revised the manuscript. ET designed the study,

analyzed the data and critically reviewed and revised the manuscript. AI contributed to collected data and assisted with data analysis, critically reviewed and revised the manuscript. DN analyzed the data, and critically reviewed and revised the manuscript. AF contributed to collected data, critically reviewed and revised the manuscript.

References

1. WHO. COVID-19 public health emergency of international concern (PHEIC) global research and innovation forum. 2020 [Available from: https://www.who.int/publications/m/item/covid-19-public-health-emergency-of-international-concern-(pheic)-global-research-and-innovation-forum
2. WHO. WHO coronavirus disease (COVID-19) dashboard with vaccination data: Indonesia 2021 [Available from: https://covid19.who.int/region/searo/country/id.
3. Worldmeter. Worldmeter's COVID-19 data: Indonesia 2021 [Available from: https://worldmeters.info/coronavirus/country/indonesia/.
4. Read S, Wild SH. What are the risks of COVID-19 infection in pregnant women?2020; 395:[760-2 pp.].
5. Health IMo. Indonesia Health Profile. In: Health Mo, editor. Jakarta2018.
6. Health IMo. Indonesia Health Profile. In: Health Mo, editor. Jakarta2019.
7. Health IMo. Indonesia Health Profile. In: Health Mo, editor. Jakarta2020.
8. Nasional BKdKB. Kematian ibu hamil selama pandemi tinggi, Kepala BKKBN apresiasi kecepatan vaksinasi di DKI Jakarta2021. Available from: https://www.bkkbn.go.id/detailpost/kematian-ibu-hamil-selama-pandemi-tinggi-kepala-bkkbn-apresiasi-kecepatan-vaksinasi-di-dki-jakarta.
9. Carvalho-Sauer R, Costa M, Teixeira M, Nascimento E, Silva E, Barbosa M, et al. Impact of COVID-19 pandemic on time series of maternal mortality ration in Bahia, Brazil: analysis of period 2011-2020. BMC pregnancy and childbirth. 2021;21.
10. Tola W, Negash E, Sileshi T, Wakgari N. Late initiation of antenatal care aand associated factors among pregnant women attending antenatal clinic of Ilu Ababor Zone, Southwest Ethiopia: A cross-sectional study. Plos One. 2021;16(1):1-11.
11. UNICEF. Antenatal Care. In: UNICEF, editor. 2021.
12. Abbas A, Rabeea M, Hafiz H, Ahmed N, editors. Effects of irregural antenatal care attendace in primiparas on the perinatal outcomes: a cross sectional study. Proceedings in Obstetrics and Gynecology; 2017.
13. Mckinney E. Maternal-Child Nursing. Canada: Elsevier; 2018.
14. Kazemi SN, Hajikhani B, Didar H, Hosseini SS, Haddadi S, Khalili F, et al. COVID-19 and cause of pregnancy loss during the pandemic: A systematic review. Plos One. 2021:1-10.
15. Westgren M, Pettersson K, Hagberg H, Ganesh A. Severe maternal morbidity and mortality associated with COVID-19: the risk should not be downplayed. Acta Obstetricia et Gynecologica Scandinavica. 2020;99(7):815-6.
16. Goyal M, Singh P, Singh K, Shashank S, Agrawal N, Misra S. The effect of COVID-19 pandemic on maternal health due to delay in seeking health care: Experience from a tertiary center. International Journal of Gynecology & Obstetrics. 2020.
17. Organization) PPAH. Epidemiological alert: COVID-19 during pregnancy Washington D.C2020 [Available from: https://www.paho.org/en/news/4-8-2020-paho-director-warns-disruptions-regular-health-services-due-covid-19.
18. Liu H, Wang L-L, Zhao S-J, Kim JK, Mor G, Liao A-H. Why Are Pregnant Women Susceptible to COVID-19? An Immunological Viewpoint. Journal of Reproductive Immunology. 2020;139:1-4.
19. Zacharias P, Joseph M, Jacob A, Viji CL M, Josy N, Lydia S, et al. Barriers to antenatal care during COVID-19 pandemic: A hospital-based retrospective cross-sectional study in rural South Karnataka. The New Indian Journal of Obgyn. 2021;8(1):27-32.

20. Hailemariam S, Agegnehu W, Misganaw D. Exploring COVID-19 related factors of influencing antenatal care services uptake: A qualitative study among women in rural community in Southwest Ethiopia. Journal of Primary Care & Community Health. 2021;12:1-8.
21. Speziale H, Streubert H, Carpenter D. Qualitative Research in Nursing: Advancing the Humanistic Imperative Philadhelphia: Wolters Kluwer; 2011.
22. Tong A, Sainsbury, P., and Craig, J. Consolidated Criteria for Reporting Qualitative Research (COREQ): A 32-Item Checklist for Interviews and Focus Groups. International Journal for Quality in Health Care. 2007;19:349-57.
23. Polit DF, Beck CT. Essentials of Nursing Research: Appraising Evidence for Nursing Practice. 9th ed. Philadelphia: Lippincott Williams & Wilkins; 2018.
24. Braun V, Clarke V. Using Thematic Analysis in Psychology. Qualitative Research in Psychology. 2006;3(2):77-101.
25. Health IMo. Guidelines for Antenatal Care, Labor, Postpartum, and Newborn in New Normal Era. Jakarta: Indonesia Ministry of Health; 2020.
26. Tadesse E. Antenatal Care Service Utilization of Pregnant Women Attending Antenatal Care in Public Hospitals During the COVID-19 Pandemic Period. Int J Womens Health. 2020;12:1181-8.
27. Moyer CA, Sakyi KS, Sacks E, Compton SD, Lori JR, Williams JEO. COVID-19 is Increasing Ghanaian Pregnant Women's Anxiety and Reducing Healthcare Seeking. Int J Gynecol Obstet. 2020;00:1-2.
28. Ge Y, Shi C, Wu B. Anxiety and Adaptation of Behavior in Pregnant Zhuang Women During the COVID-19 Pandemic: A Mixed-Mode Survey. Risk Management and Healthcare Policy. 2021;14.
29. WHO. Coronavirus and pregnancy preserving maternal health across the european region 2020 [Available from: https://www.euro.who.int/en/ health-topics/Life-stages/maternal-and-newborn-health/news/news/ 2020/6/coronavirus-and-pregnancy-preserving-maternal-health- across-the-european-region.). .
30. Basu A, Kim HH, Basaldua R, Choi KW, Charron L, Kelsall N, et al. A Cross-National Study of Factors Associated with Women's Perinatal Mental Health and Wellbeing During the COVID-19 Pandemic. Plos Ones. 2021:1-18.
31. Savolainen L, Oksa R, Savela N, Celuch M, Oksanen A. COVID-19 Anxiety- A Longitudinal Survey Study of Psychological ad Situational Risks Among Finnish Worker. International Journal of Environmental Research and Public Health. 2021;18(2):794.
32. Bakouei F, Nikpour M, Rad HA, Marzoni ZA. Exploration of the Pregnant Women's Experiences During COVID-19 Disease Crisis : A Qualitative study. 2020.
33. Zhang J, Zhu L, Li S, Huang J, Ye Z, Wei Q, et al. Rural-Urban DIsparities in Knowledge, Behaviors, and Mental Health During COVID-19 Pandemic. Medicine. 2021;100(13):1-7.
34. Chen X, Chen H. Differences in preventive ehaviors of COVID-19 between urban and rural residents: lessons learned from a cross-sectional study in China. International Journal of Environmental Research and Public Health. 2020;17(4437):1-14.
35. Gutu B, Legese G, Ngussie F, Kumela B, Shuma F, Mosisa W, et al. Assesment of preventive behavior and associated factors towards COVID-19 in Qellam Wallaga Zone, Oromia, Ethiopia: A community-based cross-sectional study. Plos One. 2021.
36. Vicerra P. Knowledge-behavior gap on COVID-19 among older people in rural Thailand. Gerontology & Geriatric Medicine. 2021;7:1-7.
37. Health IMo. Abolition of mudik at ied fitr 1442 and preventing corona virus disease 2019 (COVID-19) during ramadhan 1442. In: Health Mo, editor. Jakarta2021.
38. Dunkel C. Psychological science on pregnancy: stress process, biopsychosocial models, and emerging research issues. Annual Review of Psychology. 2011;62:531-58.
39. Matvienko-Sikar K, Pope J, Cremin A, Carr H, Leitao S, Olander EK, et al. Differences in levels of stress, social support, health behaviours, and stress-reduction strategies for women pregnant before and during the COVID-19 pandemic, and based on phases of pandemic restrictions, in ireland. Women and Birth. 2021;34:447-54.
40. W M, G T, Kassie B, Asratie M, Abate A. The effects of fear and knowledge of COVID-19 on preventive practice among pregnant women who attend antenatal care in Northwest Ethiopia, 2020: institution-based cross-sectional study. International Journal of Women's Health. 2021;13:95-100.

41. Amini S, Mohseni H, Motjaba K, Reza A. Nuutrition in caring for pregnant women during the COVID-19 pandemic in low-income countries. Nutrition and Public Health. 2021;56(2):80-4.
42. Nawsherwan, Khan S, Zeb F, Shoaib M, Nabi G, Ul Haq I, et al. Selected micronutrients: An option to boost immunity against COVID-19 and prevent adverse pregnancy outcomes in pregnant women: A narrative review. Iranian Journal of Public Health. 2020;49(11):2032-43.
43. Kimani RW, Maina R, Shumba C, Shaibu S. Maternal and newborn care during the COVID-19 pandemic in Kenya: recontextualising the community midwifery model. Human Resources for Health. 2020;75:1-5.
44. Meaney S, Leitao S, Pope J, Matvienko-Sikar K. The impact of COVID-19 on pregnant women's experiences and perceptions of antenatal maternity care, social support, and stress-reduction strategies. Women Birth. 2021(21).

LAMPIRAN A. RINCIAN ANGGARAN

No.	Keterangan	Jenis Pengeluaran	Kuantitas	Harga Satuan	Jumlah
1	Easy touch	Bahan habis pakai	2	500.000	1000000
2	Stik test hemoglobin	Bahan habis pakai	10	180.000	1800000
3	Alkohol swab	Bahan habis pakai	4	50.000	200000
4	Jarum lancet	Bahan habis pakai	4	75.000	300000
7	Lumpsum pengumpul data	Bahan habis pakai	200	30.000	6000000
8	Souvenir untuk responden	Bahan habis pakai	200	20.000	4000000
9	Perbaikan software android Denia	Bahan habis pakai	1	2.000.000	2000000
10	Tita printer laserjet	Bahan habis pakai	1	750.000	750000
11	Alat tulis bagi enumerator	Bahan habis pakai	10	75.000	750000
12	Proofread artikel ke native speaker	Luaran penelitian: publikasi atau kekayaan intelektual	1	2.750.000	2750000
13	Seminar nasional	Luaran penelitian: publikasi atau kekayaan intelektual	5	200.000	1000000
14	Biaya publikasi jurnal terakreditasi sinta 2	Luaran penelitian: publikasi atau kekayaan intelektual	1	1.000.000	1000000
15	Pendaftaran HAKI	Luaran penelitian: publikasi atau kekayaan intelektual	1	600.000	600000
16	Publikasi di jurnal internasional	Luaran penelitian: publikasi atau kekayaan intelektual	1	7.000.000	7000000
17	Kertas HVS	Pelaksanaan lainnya: administrasi, seminar, laporan, lainnya	20	25.000	500000
18	Uji etik penelitian	Pelaksanaan lainnya: administrasi, seminar, laporan, lainnya	1	500.000	500000
19	Copy dan jilid proposal penelitian	Pelaksanaan lainnya: administrasi, seminar, laporan, lainnya	5	50.000	200000
20	Copy dan cetak laporan kemajuan	Pelaksanaan lainnya: administrasi, seminar, laporan, lainnya	5	50.000	200000
21	Copy dan cetak laporan akhir	Pelaksanaan lainnya: administrasi, seminar, laporan, lainnya	5	50.000	200000

22	Transportasi enumerator untuk pengambilan data	Perjalanan	400	50.000	2000000
TOTAL ANGGARAN YANG DIPERLUKAN					3275000