

Pendidikan Kesehatan Dalam Peningkatan Pengetahuan, Sikap Dan Keterampilan Keluarga Dengan Hipertensi - Pilot Study

Health Education in the Improvement of Knowledge , Attitude and Practice in the Family with Hypertension – a Pilot Study

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Abstrak

Hipertensi merupakan salah satu masalah utama kesehatan masyarakat saat ini, prevalensi di Indonesia mencapai 31,7% tahun 2007 dan 25,8% pada tahun 2013, namun angka ini masih dalam kategori tinggi. Bila tidak ditangani dengan baik sedini mungkin bisa menjadi *the silent killer*. Beberapa penelitian menunjukkan bahwa pendekatan nonfarmakologis termasuk penurunan berat badan, pembatasan alkohol, natrium dan tembakau, latihan dan relaksasi merupakan intervensi wajib pada penanganan hipertensi. Disamping tenaga medis, keluarga juga berperan penting, namun pengaruh intervensi pendidikan kesehatan terhadap peningkatan pengetahuan, sikap dan keterampilan keluarga dengan hipertensi masih kurang *evidence* terutama di Aceh. Tujuan penelitian mengetahui pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan, sikap dan keterampilan keluarga dengan hipertensi di Kemukiman Bluek Grong-Grong Kecamatan Indrajaya Kabupaten Pidie. Intervensi Pendidikan kesehatan tentang hipertensi dengan metode ceramah, diskusi dan demonstrasi menggunakan media *power point* dan *booklets*. Jenis penelitian kuantitatif dengan desain *pre experimental* berupa *the one group pretest-posttest design* terhadap 37 responden yang diperoleh secara *simple random sampling*. Instrumen penelitian adalah kuesioner. Teknik analisa data menggunakan uji statistik parametrik *Paired T-test*. Hasil penelitian menunjukkan terdapat pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan ($p = 0,0001$), sikap ($p = 0,0001$) dan keterampilan ($p = 0,0001$). Diharapkan pendidikan kesehatan tentang hipertensi dapat dijadikan salah satu tindakan keperawatan pada keluarga dengan hipertensi di komunitas.

Kata Kunci : Hipertensi, Keluarga, Pendidikan kesehatan, Sikap

Abstract

Hypertension is one of the major public health problem today, prevalence in Indonesia reached 31.7 % in 2007 and to 25.8 % in 2013, but this figure is still in the high category. If not handled properly as early as possible it can be "the silent killer". Some research suggests that non-pharmacological approaches include weight loss , alcohol restrictions , sodium and tobacco , exercise and relaxation are compulsory intervention on hypertension management. Other than medical personnel, the family also plays an important role. However , the effect of health education interventions to increase knowledge, attitudes and practice of families with hypertension still less evidence , especially in Aceh. This study aims to determine the effect of health education to increase knowledge , attitude and practice of families with hypertension in Bluek Grong-Grong Sub-Subdistrict Indrajaya Subdistrict Pidie District. Health education intervention on hypertension with lectures, discussions and demonstrations using media power point and booklets. This research is a quantitative research design pre experiment with the one group pretest-posttest design of the 37 respondents were obtained through simple random sampling. The research instrument was a questionnaire. Data analysis techniques using parametric statistical tests Paired t-test . The results showed there are significant health education to increase knowledge ($p = 0,0001$), attitude ($p = 0,0001$), and practice ($p = 0,0001$). Expected health education about hypertension can be one nursing actions on families with hypertension in the community.

Keywords: hypertension, family, health education, attitude

Latar Belakang

Hipertensi dapat didefinisikan sebagai tekanan darah persisten dengan tekanan sistolik ≥ 140 mmHg dan tekanan diastolik ≥ 90 mmHg. Hipertensi sering disebut *the silent killer* atau “pembunuh diam-diam”, karena orang dengan hipertensi sering tidak menampakkan gejala. Institut Nasional Jantung, Paru dan Darah U.S.A. memperkirakan sepuluh orang yang menderita hipertensi tidak sadar akan kondisinya. Begitu penyakit ini diderita, tekanan darah pasien harus dipantau dengan interval teratur mengingat hipertensi merupakan kondisi seumur hidup (Smeltzer & Barre, 2002).

Apabila hipertensi tidak terkontrol, akan menyerang target organ, dan dapat menyebabkan serangan jantung, stroke, gangguan ginjal, serta kebutaan. Dari beberapa penelitian dilaporkan bahwa penyakit hipertensi yang tidak terkontrol dapat menyebabkan peluang 7 kali lebih besar terkena stroke, 6 kali lebih besar terkena *congestive heart failure*, dan 3 kali lebih besar terkena serangan jantung (Rahajeng & Tuminah, 2009; Lu, *et al.* 2015).

Data dari *World Health Organization* (WHO) dan *the International Society of Hypertension* (ISH), saat ini terdapat 600 juta penderita hipertensi di seluruh dunia, dan 3 juta diantaranya meninggal setiap tahunnya, 7

dari 10 penderita tersebut tidak mendapatkan pengobatan secara adekuat (Rahajeng & Tuminah, 2009). Jumlah penderita hipertensi di Indonesia pada tahun 1995 baru sekitar 5 persen dari populasi. Survei tahun 2008 yang dilakukan WHO menjadi 32 persen (Widiani, 2013).

Tahun 2007, prevalensi hipertensi di Indonesia mencapai 31,7%. Prevalensi menjadi 25,8% pada tahun 2013, namun angka ini masih dalam kategori tinggi bahkan sebagian besar (63,2%) kasus hipertensi di masyarakat tidak terdiagnosis (Kemenkes, 2013). Di Provinsi Aceh diketahui prevalensi hipertensi mencapai 30,2%, paling tinggi di Indonesia (Kemenkes, 2007).

Di Kabupaten Pidie, kasus hipertensi yang dirawat di puskesmas tahun 2012 berjumlah 1.590 kasus dan 919 kasus baru. Tahun 2013 jumlah kasus baru sudah mencapai 15.245 kasus (Dinkes Pidie, 2014).

Peningkatan kasus hipertensi terjadi di hampir semua Puskesmas. Di Puskesmas Indrajaya misalnya pada tahun 2013 telah merawat rata-rata 65 kasus hipertensi perbulan dan periode Januari sampai dengan Juni 2014 sebanyak 466 kasus atau 143 kasus perbulan (Puskesmas Indrajaya, 2014). Ini merupakan peningkatan jumlah kasus yang sangat signifikan. Sedangkan jumlah penderita hipertensi di Kemukiman Bluek Grong-Grong Kecamatan Indrajaya Kabupaten Pidie sebanyak 114 orang yang

tersebar di 16 desa.

Menurut Friedman (2010) salah satu fungsi keluarga adalah fungsi perawatan atau pemeliharaan kesehatan yaitu keluarga berfungsi untuk mempertahankan keadaan kesehatan anggota keluarga, namun kenyataannya banyak keluarga yang tidak memiliki kemampuan merawat anggota keluarga dengan hipertensi sehingga diperlukan intervensi pendidikan kesehatan bagi keluarga. Masyarakat tidak sepenuhnya memahami hipertensi dan manfaat *early diagnosis* dan *early prevention*, terutama masyarakat berpendidikan rendah dan kelompok tidak bekerja.

Pendidikan kesehatan sebagai intervensi keperawatan mandiri dapat direncanakan untuk meningkatkan kemampuan keluarga dalam merawat anggota keluarga yang mengalami hipertensi. Keluarga merupakan sumber daya penting pemberian layanan kesehatan, baik bagi individu maupun keluarga. Saat perawatan difokuskan pada keluarga, efektifitas perawatan terbukti meningkat. Pengkajian dan pemberian layanan kesehatan keluarga adalah hal yang penting dalam membantu tiap anggota keluarga mencapai tingkat kesejahteraan yang optimum (Gilliss & Davis, 1993 dalam Friedman, 2010).

Pendidikan kesehatan merupakan prioritas utama dan merupakan salah satu intervensi keperawatan yang efektif untuk meningkatkan

tingkat kesadaran masyarakat akan pentingnya pemahaman yang benar mengenai hipertensi. Namun demikian, efektifitas pendidikan kesehatan belum sepenuhnya diketahui pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan, sikap dan keterampilan keluarga terutama dalam merawat anggota keluarga dengan hipertensi. Penelitian ini bertujuan untuk mengetahui apakah ada pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan, sikap dan keterampilan keluarga dengan hipertensi

Metode

Desain penelitian adalah *pre experimental* dengan rancangan *the one group pretest-posttest*. Penelitian dilakukan di Kemukiman Bluek Grong-Grong wilayah kerja Puskesmas Indrajaya kabupaten Pidie pada tanggal 16 Maret sampai dengan 25 April 2015. Populasi dalam penelitian ini adalah semua keluarga yang anggota keluarganya menderita hipertensi yang tinggal di Kemukiman Bluek Grong-grong Kecamatan Indrajaya Kabupaten Pidie sebanyak 114 keluarga. Teknik sampel dengan *simple random sampling* berjumlah 37 orang. Instrumen penelitian menggunakan kuesioner yang dirancang oleh peneliti yang telah diuji validitas dan reliabilitas.

Metode pengumpulan data dilakukan dalam beberapa tahapan. *Pretest* satu kali pada setiap responden. Satu minggu setelah *pretest* dilanjutkan dengan kegiatan intervensi berupa

pendidikan kesehatan 4 (empat) kali pertemuan dengan interval waktu 1 (satu) minggu. Intervensi pertama sampai dengan ketiga dilakukan secara kelompok di Aula Puskesmas Indrajaya dengan metode ceramah menggunakan media *power point* dan *booklets* selama 60 menit dengan materi pendidikan kesehatan tentang perawatan hipertensi meliputi pengertian tekanan darah tinggi, penyebab, gejala, komplikasi, ketaatan pada pengobatan, manajemen berat badan, nutrisi dan aktivitas fisik. Nutrisi atau diet pada hipertensi terdiri dari rendah lemak, rendah garam, tinggi buah-buahan, sayuran dan ikan. Aktivitas fisik berupa aktivitas fisik sedang minimal 30 menit/hari. Pertemuan keempat dilakukan di rumah responden secara individu dengan metode demonstrasi dan redemonstrasi selama 30 – 40 menit dengan materi cara mengukur tekanan darah di rumah. Tahapan terakhir dilakukan *posttest* 1 kali pada setiap responden.

Analisis data meliputi analisis *univariat* dan analisis *bivariat* menggunakan uji statistik *Paired t-test* pada *confidence interval* 90% ($\alpha=10\%$) setelah melakukan uji normalitas data menggunakan uji *Kolmogorov-Smirnov Z* dengan hasil untuk seluruh variabel pada *pretest* dan *posttest* paling rendah adalah 0,1 dan paling tinggi adalah 0,756 atau lebih besar dari 0,05 sehingga dapat disimpulkan data terdistribusi normal.

Hasil

Data karakteristik responden dapat terlihat pada Tabel 1.

Tabel 1. Responden Menurut Umur, Jenis Kelamin dan Pendidikan (n = 37)

No	Karakteristik	f	%
1	Umur		
	Remaja Akhir (17 – 25 Tahun)	11	29,7
	Dewasa Awal (26 – 35 Tahun)	14	37,8
	Dewasa Akhir (36 – 45 Tahun)	9	24,3
	Lansia Awal (46 – 55 Tahun)	3	8,1
2	Jenis Kelamin		
	Laki-laki	4	10,8
	Perempuan	33	89,2
3	Pendidikan		
	Dasar (SD & SMP)	10	27,0
	Menengah (SMA)	14	37,8
	Tinggi (D III & S1)	13	35,1

Berdasarkan tabel 1 di atas sebagian besar responden dengan kelompok umur dewasa dengan dewasa awal dan dewasa akhir 62,1%, jenis kelamin perempuan 89,2% dan tingkat pendidikan menengah dan tinggi 72,9%.

Skor *pretest* dan *posttest* didapatkan nilai rata-rata (*mean*) pengetahuan 46,62 (SD. 13,746) dan 69,86 (13,307), sikap 80,16 (9,677) dan 88,05 (9,375), keterampilan 20,72 (21,30) dan 86,49 (17,50).

Perbedaan nilai rata-rata pengetahuan, sikap dan keterampilan responden *pretest* dan *posttest* disajikan pada Tabel 2.

Tabel 2. Perbedaan Pengetahuan, Sikap dan Keterampilan Responden Nilai Pretest dan Posttest Rata-Rata

Variabel	Mean	SD	Min - Max	Mean Difference	P Value
Pengetahuan					
<i>Pretest</i>	46,62	13,74	20-75	-	0,0001
<i>Posttest</i>	69,86	13,30	40-95	23,24	
Sikap					
<i>Pretest</i>	80,16	9,67	62-94	-	0,0001
<i>Posttest</i>	88,05	9,37	64-98	7,892	
Keterampilan					
<i>Pretest</i>	20,72	21,30	0-100	-	0,0001
<i>Posttest</i>	86,49	17,50	33,3-100	65,77	

Nilai rata-rata (*mean*) pengetahuan responden *pretest* 46,62 dan *posttest* 69,86 (0,0001) menunjukkan ada pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan keluarga dengan hipertensi. Nilai rata-rata (*mean*) sikap responden *pretest* 80,16 dan *posttest* 88,05 (0,0001) menunjukkan ada pengaruh pendidikan kesehatan terhadap peningkatan sikap keluarga dengan hipertensi. Nilai rata-rata (*mean*) keterampilan responden *pretest* 20,72 dan *posttest* 86,49 (0,0001) menunjukkan ada pengaruh pendidikan kesehatan terhadap peningkatan keterampilan keluarga dengan hipertensi.

Pembahasan

Penelitian ini menemukan ada pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan keluarga dengan hipertensi. Hal

ini sejalan dengan penelitian sebelumnya (Purwati, *et al.*, 2014) terdapat pengaruh penyuluhan kesehatan terhadap peningkatan pengetahuan klien hipertensi.

Penelitian Beigi, *et al.*, (2014), menunjukkan bahwa program pendidikan efektif dalam meningkatkan pengetahuan, meningkatkan manajemen diri, dan mengendalikan kebiasaan gaya hidup yang merugikan pasien dengan hipertensi. Hasil penelitian Roca, *et al.*, (2003) bahwa program pendidikan hipertensi dapat berguna dalam meningkatkan pengetahuan tentang hipertensi.

Penelitian Susanti, *et al.*, (2012) menunjukkan bahwa ada pengaruh yang signifikan antara pemberian pendidikan tentang hipertensi terhadap peningkatan pengetahuan mengelola hipertensi. Hasil penelitian Bayo (2008) bahwa ada pengaruh pendidikan kesehatan terhadap pengetahuan klien tentang cara pencegahan hipertensi.

Proses belajar dalam pendidikan kesehatan merupakan proses terjadinya perubahan kemampuan pada subjek belajar dengan keluaran yang diharapkan adalah kemampuan sebagai hasil perubahan perilaku dari sasaran didik (Notoatmodjo, 2010). Peningkatan pengetahuan yang terjadi setelah diberikan pendidikan kesehatan merupakan salah satu aspek kemampuan yang dicapai oleh sasaran didik sebagai akibat adanya proses belajar.

Pendidikan kesehatan merupakan aktifitas pembelajaran yang dirancang oleh perawat sesuai kebutuhan klien. Pencapaian tujuan pendidikan kesehatan akan lebih mudah dengan penggunaan media pembelajaran yang sesuai dan dapat meningkatkan kemudahan penerimaan informasi. Menurut Nies dan McEwen (2001) penggunaan alat bantu berupa tulisan akan lebih menghasilkan peningkatan pengetahuan daripada dengan kata-kata.

Pendidikan kesehatan tentang perawatan hipertensi dilakukan dengan menggunakan media berupa *power point* dan *booklet*. Notoatmodjo (2010) menjelaskan bahwa kurang lebih 75% dari pengetahuan manusia diperoleh melalui mata, sedang sisanya melalui indera yang lain. Dengan menggunakan *power point* dan *booklet*, informasi yang disampaikan melalui mata lebih banyak, sehingga informasi akan lebih mudah diterima oleh keluarga.

Berdasarkan hasil penelitian ini pendidikan kesehatan efektif untuk meningkatkan pengetahuan keluarga tentang perawatan hipertensi di Kemukiman Bluek Grong-grong Kecamatan Indrajaya Kabupaten Pidie. Hal ini dimungkinkan karena responden juga sudah merawat keluarganya yang menderita hipertensi dan materi pendidikan kesehatan diberikan dengan metode ceramah dan menggunakan media *power point* dan *booklets* sehingga responden dapat memahami pesan dengan baik. Hal ini sesuai dengan pendapat

Ali (2000) bahwa penyuluhan kesehatan adalah kegiatan pendidikan yang dilakukan dengan cara menyebarkan pesan, menanamkan keyakinan, sehingga orang tidak saja sadar, tahu dan mengerti, tetapi juga mau dan bisa melakukan suatu anjuran yang ada hubungannya dengan kesehatan.

Menurut Notoatmodjo (2010) bahwa pengetahuan adalah merupakan hasil tahu dan ini terjadi setelah orang melakukan penginderaan terhadap suatu objek tertentu. Penginderaan terjadi melalui pancaindera seseorang. Pengetahuan merupakan domain yang sangat penting untuk terbentuknya tindakan seseorang.

Berdasarkan uraian tentang hasil penelitian dan teori-teori terkait tersebut di atas, maka dapat diasumsikan bahwa pendidikan kesehatan tentang perawatan hipertensi pada keluarga dengan hipertensi memiliki pengaruh yang positif terhadap peningkatan pengetahuan keluarga dalam merawat anggota keluarga yang menderita hipertensi di rumah.

Namun demikian diketahui bahwa sebelum diberikan pendidikan kesehatan tentang hipertensi, responden telah memiliki pengetahuan tentang hipertensi yang dapat dilihat dari *mean skor pretest* pengetahuan yaitu 46,62 artinya bahwa responden sudah pernah memperoleh informasi tentang hipertensi dari petugas kesehatan, televisi, surat kabar ataupun buku bacaan.

Selanjutnya, penelitian ini menemukan ada pengaruh pendidikan kesehatan terhadap peningkatan sikap keluarga dengan hipertensi. Hal ini sejalan dengan penelitian sebelumnya (Susanti, *et al.*, 2012) bahwa ada pengaruh yang signifikan antara pemberian pendidikan kesehatan dan sikap baik sebelum dan sesudah diberikan pendidikan kesehatan tentang hipertensi terhadap sikap dalam mengelola hipertensi.

Penelitian Ludianita, 2013 menunjukkan terdapat interaksi pengaruh pendidikan kesehatan dan sikap terhadap perilaku penderita hipertensi. Penelitian Widyasari, *et al.*, (2010) menunjukkan peningkatan yang signifikan secara statistik dalam pengetahuan dan sikap sebelum dan sesudah pendidikan. Hasil penelitian Songjanan, *et al.*, (2013) bahwa ada perbedaan sikap yang bermakna antara sebelum dan setelah diberikan pendidikan kesehatan.

Menurut Notoatmodjo (2010) sikap adalah respon tertutup seseorang terhadap stimulus atau objek tertentu yang sudah melibatkan faktor pendapat dan emosi yang bersangkutan (senang-tidak senang, setuju-tidak setuju, baik-tidak baik dan sebagainya). Dalam menentukan sikap yang utuh, pengetahuan, pikiran, keyakinan dan emosi memegang peranan penting. Menurut Notoatmodjo (2010) sikap mempunyai tiga komponen pokok yaitu kepercayaan atau keyakinan, ide dan konsep terhadap suatu objek; kehidupan emosional

atau evaluasi terhadap suatu objek; dan kecenderungan untuk bertindak.

Berdasarkan uraian tentang hasil penelitian di atas, maka dapat diasumsikan bahwa sikap keluarga dalam merawat anggota keluarga yang menderita hipertensi sangat dipengaruhi oleh pemahaman keluarga tersebut tentang tatacara perawatan hipertensi di rumah yang dapat diperoleh melalui pendidikan kesehatan. Pendidikan kesehatan tentang perawatan hipertensi pada anggota keluarga dapat memberikan informasi yang dibutuhkan keluarga yang dapat meningkatkan pengetahuan keluarga sehingga keluarga dapat menentukan sikap yang lebih baik dalam perawatan hipertensi anggota keluarga.

Namun demikian diketahui bahwa sebelum diberikan pendidikan kesehatan tentang hipertensi, responden telah memiliki sikap yang baik tentang hipertensi yang dapat dilihat dari *mean* skor *pretest* sikap yaitu 80,16 artinya bahwa responden sudah pernah memperoleh informasi tentang hipertensi dari petugas kesehatan, televisi, surat kabar ataupun buku bacaan.

Selanjutnya, penelitian ini menemukan ada pengaruh pendidikan kesehatan terhadap peningkatan keterampilan keluarga dengan hipertensi. Penelitian yang dilakukan oleh Ludianita (2013) menunjukkan terdapat pengaruh pendidikan kesehatan terhadap perilaku penderita hipertensi. Hasil penelitian

Baghianimoghadam, *et al.*, (2009) bahwa program pendidikan kesehatan dapat membantu dan diperlukan untuk meningkatkan perilaku monitoring tekanan darah sendiri pada pasien dengan hipertensi. Hasil penelitian Foroushani, *et al.*, (2014), bahwa terdapat pengaruh yang signifikan antara promosi kesehatan terhadap perubahan gaya hidup Lansia dengan penyakit kronis.

Penelitian Oliveria, *et al.*, (2005) menunjukkan bahwa, meskipun pengetahuan umum dan kesadaran hipertensi memadai, pasien tidak memiliki pemahaman yang komprehensif tentang kondisi ini. sehingga diperlukan program pendidikan pasien dan intervensi pada risiko kardiovaskular yang terkait dengan hipertensi tidak terkendali, terutama peningkatan kadar tekanan darah sistolik.

Penelitian Xue & Lewin (2008) menunjukkan ada pengaruh pendidikan kesehatan terhadap manajemen diri pasien dimana terjadi perubahan yang signifikan pada gaya hidup pasien setelah menjalani 4 kali pendidikan selama 5 minggu. Hasil penelitian Wang & Abbott (2001) menunjukkan bahwa program-program pendidikan, dukungan keluarga dan layanan kesehatan telah dapat menurunkan tekanan darah pada 80% dari peserta dengan hipertensi dan dapat menurunkan kadar glukosa darah sampai dengan rata-rata 57,86 gr/dl pada 80% dari peserta dengan diabetes mellitus dalam waktu satu tahun

Penelitian Jafar, *et al.*, (2010) menunjukkan hasil bahwa keluarga berdasarkan pendidikan kesehatan di rumah secara signifikan memperbaiki peningkatan tekanan darah. Hasil penelitian Park, *et al.*, (2010) menunjukkan setelah intervensi tekanan darah pada kelompok eksperimen menurun secara signifikan dibandingkan kelompok kontrol.

Hasil penelitian Saldana, *et al.*, (2013) bahwa intervensi pendidikan terstruktur berdasarkan kebutuhan individu diidentifikasi, ditambah dengan pemberdayaan individu dan pemantauan dilakukan oleh para profesional keperawatan, memungkinkan untuk mencapai perilaku permanen sehubungan dengan perawatan diri, memfasilitasi pengetahuan diri dan perubahan pola perilaku, selain penguasaan keterampilan dan pengetahuan. Menurut Notoatmodjo (2010) hasil pendidikan orang dewasa adalah perubahan kemampuan, penampilan atau perilakunya, perubahan perilaku didasari adanya perubahan atau penambahan pengetahuan, sikap, atau keterampilannya.

Berdasarkan uraian tentang hasil penelitian dan teori-teori terkait tersebut di atas, maka dapat diasumsikan bahwa pendidikan kesehatan tentang perawatan hipertensi pada keluarga memiliki pengaruh yang positif terhadap peningkatan keterampilan keluarga dalam merawat anggota keluarga yang menderita hipertensi di rumah khususnya keterampilan tentang cara mengukur tekanan

darah. Pendidikan kesehatan tentang cara mengukur tekanan darah yang dilakukan dengan metode demonstrasi dan redemonstrasi yang dapat diamati dengan mata dapat meningkatkan kemampuan atau keterampilan keluarga dalam mengukur tekanan darah anggota keluarga sehingga keluarga dapat memantau tekanan darah anggota keluarga yang mengalami hipertensi setiap hari.

Disamping itu juga dengan memiliki keterampilan mengukur tekanan darah, seseorang juga sudah memahami tentang tekanan darah sistolik dan diastolik sehingga akan termotivasi untuk memeriksa tekanan darah anggota keluarga yang mengalami hipertensi secara rutin dan menggunakan fasilitas pelayanan kesehatan.

Kesimpulan

Berdasarkan hasil penelitian dapat disimpulkan bahwa terdapat pengaruh pendidikan kesehatan terhadap peningkatan pengetahuan, sikap dan keterampilan keluarga dengan hipertensi.

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PEMBERDAYAAN KELUARGA SADAR HIPERTENSI (GADARSI) DALAM PENINGKATAN GAYA HIDUP SEHAT PENDERITA HIPERTENSI

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Abstrak

Hipertensi adalah salah satu jenis penyakit tidak menular yang bersifat kronis, berlangsung sepanjang hayat dan bersifat *silent killer*, dengan angka prevalensi yang sangat tinggi khususnya pada usia dewasa dan lansia. Oleh karena itu, penting sekali peran keluarga dalam mencegah terjadinya komplikasi akibat kondisi hipertensi yang tidak terkontrol melalui gaya hidup sehat sehari-hari. Penelitian ini bertujuan untuk mengetahui pengaruh pemberdayaan keluarga terhadap gaya hidup sehat penderita hipertensi. Penelitian ini dilakukan di Kecamatan Balai Jaya Kabupaten Rokan Hilir, dengan jumlah sampel sebanyak 35 orang dengan teknik *purposive sampling*. Desain penelitian ini adalah Quasi eksperimen. Hasil menunjukkan terjadi peningkatan gaya hidup sehat sebesar: 91,08% (Pre test: 31,4% dan post test: 60%) dan hasil uji *Wilcoxon* menunjukkan terdapat pengaruh pemberdayaan keluarga terhadap gaya hidup sehat penderita hipertensi dengan *p value*: 0,025. Dengan demikian penting sekali upaya pemberdayaan keluarga dalam meningkatkan gaya hidup sehat penderita hipertensi di rumah.

Kata Kunci: Pemberdayaan keluarga, hipertensi, gaya hidup sehat

Abstract

Hypertension is a type of non-communicable disease that is chronic, lasts a lifetime and is a silent killer, with a very high prevalence, especially in adulthood and the elderly. Therefore, it is very important the role of the family in preventing complications due to uncontrolled hypertension through a healthy daily lifestyle. The purpose of this study was to determine the effect of family empowerment on healthy lifestyles of people with hypertension. This research was conducted in Balai Jaya District, Rokan Hilir Regency, with a total sample of 35 people with purposive sampling technique. The design of this study is Quasi experiment. The results showed an increase in healthy lifestyles by: 91.08% (Pre test: 31.4% and post test: 60%) and Wilcoxon test results showed there was an influence of family empowerment on healthy lifestyles of hypertensive patients with p value: 0.025. Thus it is very important to empower the family in improving the healthy lifestyle of hypertension sufferers at home.

Keywords: family empowerment, hypertension, healthy lifestyle

PENDAHULUAN

Hipertensi adalah salah satu jenis penyakit tidak menular yang bersifat kronis, berlangsung sepanjang hayat dan bersifat *silent killer*, dengan angka prevalensi yang sangat tinggi khususnya pada lansia. Di tingkat dunia terutama di negara maju, prevalensi hipertensi pada populasi lansia > 60 tahun diperkirakan

mencapai dua pertiga atau sekitar 60% - 80% (Giudice et al., 2010; Cornwell & Waite, 2012). Kecenderungan itu juga terjadi di Indonesia. Data laporan Riset Kesehatan Dasar (Riskesdas) tahun 2013, menunjukkan bahwa prevalensi hipertensi di Indonesia menempati urutan pertama jenis penyakit kronis tidak menular yang dialami pada kelompok usia

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dewasa, yaitu sebesar 26,5%. Prevalensi hipertensi di Indonesia cenderung meningkat seiring bertambahnya usia, yaitu prevalensi hipertensi pada kelompok usia 55-64 tahun sebesar 45,9%; usia 65-74 tahun sebesar 57,6%; dan kelompok usia >75 tahun sebesar 63,8% (Kemenkes RI, 2013).

Hal yang sama juga terjadi di Provinsi Riau. Laporan Riskesdas tahun 2013 menunjukkan bahwa prevalensi hipertensi pada usia dewasa di Provinsi Riau sebesar 20,9% dan prevalensi hipertensi tersebut cenderung mengalami peningkatan seiring bertambahnya usia. Di Provinsi Riau, prevalensi hipertensi pada kelompok usia 55-64 tahun sebesar 45,6%; kelompok usia 65-74 tahun sebesar 61,8%; dan kelompok usia 75 tahun ke atas sebesar 72,5% (Kemenkes RI, 2013).

Penyakit hipertensi merupakan urutan pertama jenis penyakit kronis tidak menular yang dialami oleh kelompok usia lanjut di Provinsi Riau (Dinkes Provinsi Riau, 2016). Dengan demikian, terlihat bahwa hipertensi merupakan masalah kesehatan umum pada lansia dan menjadi fokus pelayanan kesehatan masyarakat di dunia, termasuk di Indonesia, termasuk di Provinsi Riau.

Hal yang menjadi persoalan adalah berbagai hasil studi menunjukkan bahwa tingginya prevalensi hipertensi tersebut diiringi dengan tingginya kondisi hipertensi yang tidak terkontrol di dunia, termasuk di

Indonesia khususnya di Provinsi Riau, yaitu lebih dari 50% (Guessous et al., 2012; Cornwell and Waite, 2012; & Kemenkes RI, 2013). Kondisi itu dapat meningkatkan kejadian komplikasi akibat hipertensi yang tidak terkontrol, seperti: penyakit stroke dan jantung yang menjadi penyebab kematian utama pada lansia di tingkat dunia (Soyibo & Barton, 2012; Seedat, Rayner, Veriava, 2014; Kjeldsen et al., 2014; dan Zhang, 2015). Oleh karena itu, Nkondjock and Bizome (2010) menyatakan bahwa hipertensi dikenal sebagai *silent killer* dan faktor utama terjadinya penyakit jantung, stroke, dan kematian pada usia lanjut.

Proporsi penyebab kematian kelompok lansia yang paling tinggi adalah penyakit stroke dan penyakit jantung (*ischaemic heart diseases*) sebagai akibat lanjut dari hipertensi (Kemenkes RI, 2013; Dinkes Provinsi Riau, 2014). Hal itu menunjukkan hipertensi merupakan permasalahan kesehatan serius dan sepanjang hayat yang harus segera diatasi.

Program kesehatan lansia di Indonesia masih belum berhasil sepenuhnya dalam mengontrol kesehatan lansia terutama mengontrol kondisi hipertensi lansia. Hal itu disebabkan upaya pemberdayaan keluarga dalam program kesehatan lansia belum optimal, yang mana masih menempatkan keluarga sebagai objek (penerima pelayanan kesehatan). Pada umumnya anggota keluarga belum dilibatkan atau diberdayakan secara

aktif sebagai *caregiver* utama bagi lansia di rumah (Kemenkes RI, 2012). Kondisi tersebut mengakibatkan rendahnya kemampuan anggota keluarga dalam melakukan perawatan pada lansia hipertensi secara mandiri di rumah, terutama dalam mengontrol gaya hidup penderita sehari-hari.

Menurut Kjeldsen et al., (2014); dan Zhang (2015), hal yang paling pertama dan utama dalam mengontrol kondisi tekanan darah adalah melalui modifikasi gaya hidup. Gaya hidup sehat penderita hipertensi diantaranya adalah: tidak merokok, tidak mengkonsumsi alkohol, diet rendah garam, latihan atau olahraga teratur, hindari stress.

Beberapa hasil studi menunjukkan bahwa peran keluarga sangat penting dalam mengontrol perilaku sehat penderita hipertensi. Beberapa hasil penelitian juga menunjukkan bahwa terdapat hubungan antara dukungan keluarga terhadap status dan kondisi kesehatan, lama dan beratnya penyakit, kematian, kondisi tekanan darah yang terkontrol, pengendalian tekanan darah, kesejahteraan psikologis, perilaku sehat lansia, kepatuhan lansia dalam menjaga dan mematuhi segala yang dianjurkan oleh tenaga kesehatan profesional, harga diri, dan kualitas hidup lansia (Al-Kandari, 2011; Cornwell & Waite, 2012; Lino et al., 2013; Rabiei et al., 2013; Mukti, 2013; & Herlinah, Wiarsih, Rekawati, 2013).

Hasil studi pendahuluan di Kecamatan Balai Jaya Kabupaten Rokan Hilir, menunjukkan mayoritas (4 dari 5 orang) penderita hipertensi menunjukkan gaya hidup yang tidak sehat, seperti: merokok, tidak membatasi konsumsi garam, suka ikan asin, jarang bahkan tidak pernah berolahraga. Dimana 100% penderita tinggal bersama keluarga. Mayoritas keluarga tidak pernah memberikan perhatian atau perlakuan khusus kepada anggota keluarga yang mengalami hipertensi.

Berdasarkan uraian tersebut, maka kami tertarik melakukan penelitian tentang pemberdayaan keluarga sadar hipertensi dalam peningkatan gaya hidup sehat penderita hipertensi sehari-hari. Adapun tujuan penelitian ini adalah untuk mengetahui pengaruh pemberdayaan keluarga sadar hipertensi (GADARSI) terhadap peningkatan gaya hidup sehat penderita hipertensi.

METODE

Design penelitian yang digunakan adalah Quasi eksperimen dengan pendekatan pre test dan post test design. Lokasi kegiatan di lakukan di Desa kepenghuluan Pasir Putih kecamatan Balai Jaya Kabupaten Rokan hilir, dengan jumlah sampel adalah 35 keluarga dan penderita Hipertensi yang diambil melalui teknik *purposive sampling* berdasarkan kriteria inklusi.

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Proses pengumpulan data tentang gaya hidup penderita dilakukan sebelum intervensi dan sesudah intervensi dilakukan melalui kuesioner dan observasi ke rumah keluarga. Bentuk Intervensi pemberdayaan keluarga yang dilakukan adalah: memberikan pendidikan kesehatan kepada keluarga tentang pencegahan dan perawatan hipertensi, memberdayakan keluarga melakukan *follow up* atau monitoring evaluasi gaya hidup penderita hipertensi sehari-hari selama 2 bulan.

Instrumen atau alat ukur yang digunakan dalam penelitian kuantitatif adalah dalam bentuk kuesioner dan pedoman observasi yang telah dinyatakan valid dan reliabel melalui uji uji korelasi dengan metoda *Pearson Product Moment* (r).

Analisis statistik yang dilakukan peneliti tentang gambaran gaya hidup sebelum dan sesudah intervensi adalah dalam bentuk distribusi frekwensi dan persentasi, sedangkan untuk mengetahui pengaruh pemberdayaan keluarga terhadap gaya hidup menggunakan uji wilcoxon (data terdistribusi tidak normal) dengan program *Statistical Product and Service Solution* (SPSS).

HASIL

1. Hasil penelitian tentang gambaran gaya hidup penderita hipertensi sebelum dan sesudah intervensi dapat dilihat pada tabel 1.

Tabel. 1

Gambaran gaya hidup penderita hipertensi dan yang berisiko sebelum (pres test) dan sesudah (post test) intervensi

Kategori	Pre Test		Post Test		EFEK
	n	%	n	%	
- Sehat	11	31,4	21	60	91,08%
- Tidak Sehat	24	68,6	14	40	
Total:	35	100	35	100	

Berdasarkan tabel 1 menunjukkan bahwa terjadi peningkatan gaya hidup sehat sebesar 91,08% (Pre test: 31,4% dan post test: 60%)

2. Hasil penelitian tentang pengaruh pemberdayaan keluarga sadar hipertensi (GADARSI) terhadap gaya hidup sehat penderita hipertensi dapat dilihat pada table 2 berikut ini.

Tabel. 2

Pengaruh pemberdayaan keluarga sadar hipertensi (GADARSI) terhadap gaya hidup sehat penderita hipertensi

VARIABEL	MEAN (SD)	MED (min-max)	p value
Gaya hidup penderita hipertensi:			0,025
- Sebelum intervensi	0,69 (0,471)	1,00 (0-1)	
- Sesudah intervensi	0,40 (0,497)	0,00 (0-1)	

Berdasarkan tabel 2 menunjukkan bahwa terdapat pengaruh pemberdayaan keluarga sadar hipertensi (GADARSI) terhadap gaya hidup penderita hipertensi sehari-hari dengan p value 0,025 (p value < 0,05).

PEMBAHASAN

Berdasarkan hasil penelitian menunjukkan bahwa gambaran gaya hidup sehat penderita hipertensi sebelum intervensi masih rendah yaitu hanya 31,4%. Menurut Kjeldsen et al., (2014); dan Zhang (2015), hal yang paling pertama dan utama dalam mengontrol kondisi tekanan darah adalah melalui modifikasi gaya hidup. Gaya hidup sehat penderita hipertensi diantaranya adalah: tidak merokok, tidak mengonsumsi alcohol, diet rendah garam, latihan atau olahraga teratur, hindari stress.

Hasil beberapa studi menunjukkan bahwa mayoritas penderita hipertensi adalah kelompok usia lanjut. Menurut Friedman (2006) dalam Potter dan Perry (2010), lansia cenderung mengalami berbagai masalah kesehatan yang bersifat holistik. Salah satu masalah kesehatan yang menonjol pada lansia dengan penyakit kronis adalah masalah psikososial dengan menunjukkan sikap harga diri rendah, tak acuh, pasrah, dan tidak takut akan realitas kematian. Sikap lansia tersebut dapat memengaruhi motivasi dan perilaku lansia dalam mengontrol kesehatannya.

Selain itu, hasil studi menunjukkan adanya anggapan dari lansia dan keluarga bahwa masalah hipertensi adalah masalah yang biasa dan normal bagi orang yang sudah tua sehingga memengaruhi motivasi lansia dalam mengontrolkan kesehatannya ke pelayanan kesehatan (Watson, 2003; Stanley & Beare,

2007; Soesanto, 2010; Potter & Perry, 2010). Apabila tidak diatasi dengan segera maka dapat menurunkan kualitas hidup lansia (Anderson and McFarlane, 2007; Stanley & Beare, 2007; Dongre & Deshmukh, 2012; Vilhena et al., 2014). Hal itu dapat memberikan beban bagi semua pihak, baik bagi diri lansia itu sendiri, keluarga, masyarakat, maupun Pemerintah.

Hasil penelitian tentang gaya hidup penderita hipertensi setelah intervensi terjadinya peningkatan menjadi 60%. Sehingga dapat diketahui terjadi peningkatan gaya hidup penderita hipertensi sebesar 91,08%. Dari hasil ini dapat diketahui bahwa keluarga mempunyai peranan yang sangat penting dalam mengontrol gaya hidup penderita hipertensi.

Selain itu, hasil penelitian ini menunjukkan bahwa terdapat pengaruh pemberdayaan keluarga terhadap gaya hidup penderita hipertensi sehari-hari (p value = 0,025). Beberapa hasil studi menjelaskan bahwa keluarga merupakan sasaran pertama dan utama dalam manajemen perawatan penyakit kronis pada lansia (Stanley & Beare, 2007; Potter & Perry, 2010; Soesanto, 2010). Bagi setiap kelompok etnik, keluarga pada umumnya merupakan *support system* pertama dan utama bagi lansia (Stanley & Beare, 2007; Potter & Perry, 2010). Bahkan menurut budaya Melayu Riau, keluarga adalah tempat yang paling aman dan nyaman bagi lansia

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untuk menghabiskan sisa hidup. Anak dikatakan durhaka jika tidak mampu mengasuh orang tuanya dengan baik di rumah (Thamrin & Iskandar, 2009). Mahler et al., (2014) juga menyatakan bahwa rumah adalah tempat terbaik bagi lansia dalam meningkatkan kesehatannya.

SIMPULAN

Hasil penelitian menunjukkan bahwa terjadi peningkatan gaya hidup sehat pada penderita hipertensi sebesar: 91,08% (Pre test atau sebelum intervensi: 31,4% dan post test atau sesudah intervensi: 60%)

Hasil penelitian dengan uji *Wilcoxon* menunjukkan bahwa terdapat pengaruh pemberdayaan keluarga sadar hipertensi (GADARSI) terhadap gaya hidup penderita hipertensi sehari-hari, dimana *p value* = 0,025 (*p value* < 0,05). Dapat disimpulkan bahwa keluarga merupakan *support system* utama bagi penderita hipertensi, yang dapat mendukung dalam upaya mengontrol gaya hidup sehat penderita sehari-hari di rumah.

SARAN

a. Untuk Dinas kesehatan Kota Pekanbaru

Diharapkan hasil penelitian ini dapat menjadi pedoman dalam pengembangan program kesehatan lansia maupun program penanggulangan penyakit tidak menular di tatanan pelayanan kesehatan tingkat 1 yaitu Puskesmas. Dimana program kesehatan yang dikembangkan harus mengikutsertakan

keluarga dari penderita atau program pemberdayaan keluarga.

b. Untuk Puskesmas

Penting untuk mensupport dan memfasilitasi berbagai kegiatan promosi kesehatan dan menumbuh kembangkan kegiatan UKBM, seperti Posyandu PTM dan Posyandu lansia untuk mendekatkan pelayanan kesehatan kepada masyarakat setempat dengan mengutamakan pemberdayaan keluarga

c. Untuk Ilmu Keperawatan

Bahan tambahan dalam pengembangan ilmu keperawatan keluarga, komunitas dan keperawatan lansia terutama terkait pentingnya pemberdayaan keluarga dalam mempengaruhi perilaku sehat penderita penyakit kronis.

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FAMILY CENTERED EMPOWERMENT MODEL TERHADAP PERUBAHAN PERILAKU KELUARGA MISKIN MENCEGAH HIPERTENSI DI KECAMATAN BANTUR

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Abstrak

Hipertensi merupakan salah satu penyebab kematian nomor satu di dunia. Prevalensi hipertensi mengalami peningkatan setiap tahun seiring dengan bertambahnya umur, tingkat pendidikan, status tidak bekerja dan tingkat pengeluaran per kapita yang tinggi. Kabupaten Malang merupakan salah satu daerah di Indonesia dengan jumlah penderita hipertensi yang menduduki peringkat pertama. Penyelesaian masalah hipertensi di Kabupaten Malang sampai saat ini belum memenuhi target 100%. Capaian cakupan terendah di Kecamatan Bantur berada di Desa Bantur. Penelitian ini bertujuan untuk menganalisis pengaruh family centered empowerment model terhadap perubahan perilaku keluarga miskin dalam mencegah hipertensi pada keluarga. Penelitian ini merupakan penelitian eksperimen semu (quasi experimental research) dengan menggunakan rancangan non randomize control group pretest posttest. Hasil penelitian menunjukkan bahwa p value pengetahuan 0,005, p value sikap sebesar 0,000, dan p value tindakan sebesar 0,001 (p value < 0,05). Intervensi family centered empowerment model dapat mempengaruhi perubahan perilaku keluarga sebagai bentuk modifikasi pendidikan kesehatan pada keluarga.

Kata kunci : empowerment, keluarga, hipertensi

Abstract

Hypertension is one causes of death in the world. The prevalence of hypertension has increased every year along with increasing age, level of education, non-working status and high level of per capita expenditure. Malang District is one of the regions in Indonesia with the first number of hypertensive patients. Completion of hypertension problems in Malang District until now has not met the 100% target. The lowest coverage achievement in Bantur is in Bantur Village. This study aims to analyze the effect of a family centered empowerment model on changes in poor family behavior in preventing hypertension in families. This research is a quasi-experimental research (quasi experimental research) using non randomized design control group pretest posttest. The results showed that p value knowledge was 0.005, p value attitude was 0.000, and p value of action was 0.001 (p value <0.05). The intervention of family centered empowerment models can influence changes in family behavior as a form of modification of health education in families

Keywords: empowerment, family, hypertension

1. PENDAHULUAN

Hipertensi masih menjadi permasalahan di dunia dan negara berkembang. Hipertensi merupakan salah satu penyebab kematian nomor satu di dunia. Hasil Riset Kesehatan Dasar (RISKESDAS) tahun 2013 menunjukkan

dalam data penyakit tidak menular, prevalensi hipertensi di Indonesia cenderung meningkat mencapai 26,5% berdasarkan hasil pengukuran (Muhadi, 2016). Prevalensi hipertensi di Provinsi Jawa Timur meningkat 1% dari tahun 2014 menjadi 15,16% pada tahun 2015 (Dinas Kesehatan Provinsi Jawa Timur, 2015).

Kabupaten Malang merupakan salah satu daerah di Indonesia dengan jumlah penderita hipertensi menduduki peringkat pertama dengan prevalensi 27,4%. Penyelesaian masalah hipertensi di Kabupaten Malang sampai saat ini belum memenuhi target 100%. Lima wilayah dengan target capaian hipertensi rendah antara lain Kecamatan Bantur sebesar 7,208%, Kecamatan Ampelgading sebesar 7,247%, Kecamatan Gondanglegi sebesar 8,102%, Kecamatan Tirtoyudo sebesar 8,360%, dan Kecamatan Turen sebesar 8,382%. Kecamatan Bantur merupakan kecamatan dengan target capaian paling rendah dengan capaian cakupan sebesar 11,02%. Capaian cakupan terendah di Kecamatan Bantur berada di Desa Bantur dengan angka cakupan 10,12%. Capaian cakupan yang rendah di Desa Bantur berasal dari sedikitnya kunjungan masyarakat miskin yang memiliki jaminan kesehatan pra bayar ke pelayanan kesehatan sebesar 5,08%. Capaian cakupan yang rendah menunjukkan kurangnya kesadaran masyarakat miskin dalam memanfaatkan fasilitas pelayanan kesehatan dan rendahnya pengetahuan masyarakat tentang masalah kesehatan (Dinas Kesehatan Kabupaten Malang, 2016).

Pendidikan kesehatan merupakan salah satu bentuk kegiatan yang merupakan strategi pembangunan kesehatan untuk merubah perilaku keluarga miskin dalam mencegah masalah kesehatan (Kementerian Kesehatan Republik Indonesia, dalam Lestari, 2016). Penelitian ini menitikberatkan pada pengaruh *family-centered empowerment model* terhadap perubahan perilaku keluarga miskin dalam mencegah hipertensi pada keluarga. *Family-centered empowerment model* pada keluarga dilakukan sebagai model pendidikan kesehatan pembandingan terhadap perubahan perilaku keluarga miskin dalam mencegah hipertensi pada keluarga. Model edukasi ini juga dipilih karena dapat memperkuat sistem di dalam keluarga untuk membudayakan perilaku hidup sehat. Pemberian intervensi melalui *family-centered empowerment model* pada keluarga akan dilaksanakan sebanyak 4 sesi. Dalam pelaksanaan setiap sesi *family-centered empowerment model*, tidak ditentukan lama waktunya. Sesi dalam *family-centered empowerment model*

meliputi identifikasi masalah, identifikasi kompetensi atau kemampuan keluarga, kolaborasi keluarga dengan klien, peningkatan pengetahuan keluarga, dan evaluasi hasil (Rakhshan M, *et.al.*, 2015).

Penelitian ini menitikberatkan pada pengaruh *family-centered empowerment model* terhadap perubahan perilaku keluarga miskin dalam mencegah hipertensi pada keluarga. *Family-centered empowerment model* pada keluarga dilakukan sebagai model pendidikan kesehatan pembandingan terhadap perubahan perilaku keluarga miskin dalam mencegah hipertensi pada keluarga. Model edukasi ini juga dipilih karena dapat memperkuat sistem di dalam keluarga untuk membudayakan perilaku hidup sehat. Pemberian intervensi melalui *family-centered empowerment model* pada keluarga akan dilaksanakan sebanyak 4 sesi. Dalam pelaksanaan setiap sesi *family-centered empowerment model*, tidak ditentukan lama waktunya. Sesi dalam *family-centered empowerment model* meliputi identifikasi masalah, identifikasi kompetensi atau kemampuan keluarga, kolaborasi keluarga dengan klien, peningkatan pengetahuan keluarga, dan evaluasi hasil (Rakhshan M, *et.al.*, 2015).

2. METODE PENELITIAN

Penelitian eksperimen yang digunakan adalah penelitian eksperimen semu (*quasi experimental research*). Rancangan eksperimen semu yang digunakan adalah *Non-Randomize Control Group Pretest-Posttest Design* (Notoatmodjo, 2007). Besar populasi untuk penelitian ini adalah 40 keluarga miskin di Desa Bantur, Kecamatan Bantur, Kabupaten Malang. Jumlah sampel adalah 28 keluarga yang dibagi menjadi 2 kelompok yaitu kelompok kontrol sejumlah 14 keluarga dan kelompok perlakuan *family centered empowerment model* sejumlah 14 keluarga.

Teknik pengumpulan data dalam penelitian ini menggunakan teknik pengumpulan jawaban *pre test* dan *post test* pengetahuan, sikap, dan tindakan dari keluarga miskin dengan anggota keluarga memiliki hipertensi melalui instrumen tes. Kuesioner aspek pengetahuan terdiri dari 15 pernyataan dan kuesioner sikap terdiri dari 10 pernyataan. Analisa data untuk mengetahui pengaruh *family centered*

empowerment model terhadap perubahan perilaku keluarga dalam mencegah hipertensi menggunakan uji statistik *Mann Whitney Test*. Uji *Mann Whitney* digunakan untuk menguji pengaruh suatu intervensi pada kelompok tertentu dibandingkan dengan kelompok kontrol.

3. HASIL DAN PEMBAHASAN

Hasil analisis perbedaan nilai *pretest* pengetahuan keluarga miskin dalam mencegah hipertensi, diketahui bahwa hasil *pretest* pada kelompok intervensi (*family centered empowerment model*) sebanyak 6 responden (54,5%) memiliki pengetahuan sedang, dan 8 responden (47%) memiliki pengetahuan rendah tentang pencegahan hipertensi. Hasil tersebut tidak jauh berbeda dengan hasil *pretest* kelompok kontrol, sebanyak 5 responden (45,5%) pada kelompok kontrol memiliki pengetahuan sedang, dan 9 responden (53%) memiliki pengetahuan rendah tentang pencegahan hipertensi. Tingkat pengetahuan responden sebelum diberikan intervensi sebagian memiliki tingkat pengetahuan sedang dan sebagian memiliki tingkat pengetahuan rendah tentang pencegahan hipertensi pada keluarga.

Hasil uji statistik *Kruskal Wallis* pada nilai *pretest* kelompok intervensi dengan kelompok kontrol didapatkan $p \text{ value} = 0,439$ dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa $p \text{ value}$ lebih dari nilai taraf signifikan ($0,439 > 0,05$). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah tidak terdapat perbedaan yang signifikan pada hasil *pretest* pengetahuan keluarga dalam mencegah hipertensi antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol.

Hasil analisis perbedaan nilai *posttest* pengetahuan keluarga miskin dalam mencegah hipertensi, diketahui bahwa hasil *posttest* pada kelompok intervensi (*family centered empowerment model*) menunjukkan 10 responden dengan tingkat pengetahuan tinggi. Namun tidak terdapat responden dengan tingkat pengetahuan tinggi tentang pencegahan hipertensi pada kelompok kontrol. Pada kelompok kontrol masih terdapat 2 responden (100%) dengan tingkat pengetahuan rendah tentang pencegahan hipertensi pada keluarga.

Hasil uji statistik *Kruskal Wallis* pada nilai *posttest* kelompok intervensi dengan kelompok kontrol didapatkan $p \text{ value} = 0,005$ dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa $p \text{ value}$ kurang dari nilai taraf signifikan ($0,005 < 0,05$). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah terdapat perbedaan yang signifikan pada hasil *posttest* pengetahuan keluarga dalam mencegah hipertensi pada keluarga antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol.

Hasil analisis perbedaan nilai *pretest* sikap keluarga miskin dalam mencegah hipertensi, diketahui bahwa hasil *pretest* pada kelompok intervensi (*family centered empowerment model*) sebanyak 5 responden (45,5%) memiliki sikap cukup, dan 9 responden (53%) memiliki sikap kurang terhadap pencegahan hipertensi. Hasil tersebut tidak jauh berbeda dengan hasil *pretest* kelompok kontrol, sebanyak 6 responden (54,5%) pada kelompok kontrol memiliki sikap cukup, dan 8 responden (47%) memiliki sikap kurang terhadap pencegahan hipertensi. Sikap responden sebelum diberikan intervensi sebagian memiliki sikap cukup dan sebagian memiliki sikap kurang dalam mencegah hipertensi pada keluarga.

Hasil uji statistik *Kruskal Wallis* pada nilai *pretest* kelompok intervensi dengan kelompok kontrol didapatkan $p \text{ value} = 0,431$ dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa $p \text{ value}$ lebih dari nilai taraf signifikan ($0,431 > 0,05$). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah tidak terdapat perbedaan yang signifikan pada hasil *pretest* sikap keluarga dalam mencegah hipertensi antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol.

Hasil analisis perbedaan nilai *posttest* sikap keluarga miskin dalam mencegah hipertensi, diketahui bahwa hasil *posttest* sebanyak 10 responden (100%) pada kelompok intervensi (*family centered empowerment model*) menunjukkan sikap baik dalam mencegah hipertensi pada keluarga. Namun tidak terdapat responden dengan sikap baik dalam mencegah hipertensi pada kelompok kontrol. Pada kelompok kontrol masih terdapat 6

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responden (100%) dengan sikap kurang

Hasil uji statistik *Kruskal Wallis* pada nilai *posttest* kelompok intervensi dengan kelompok kontrol didapatkan *p value* = 0,000 dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa *p value* kurang dari nilai taraf signifikan (0,000 < 0,05). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah terdapat perbedaan yang signifikan pada hasil *posttest* sikap keluarga dalam mencegah hipertensi pada keluarga antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol.

Hasil analisis perbedaan nilai *pretest* tindakan keluarga miskin dalam mencegah hipertensi diketahui bahwa hasil *pretest* pada kelompok intervensi (*family centered empowerment model*) sebanyak 4 responden (57%) memiliki tindakan cukup, dan 10 responden (48%) memiliki tindakan kurang dalam melakukan pencegahan hipertensi. Hasil tersebut tidak jauh berbeda dengan hasil *pretest* kelompok kontrol, sebanyak 3 responden (43%) pada kelompok kontrol memiliki tindakan cukup, dan 11 responden (52%) memiliki tindakan kurang dalam melakukan pencegahan hipertensi. Tindakan responden sebelum diberikan intervensi menunjukkan bahwa sebagian besar kurang melakukan tindakan pencegahan hipertensi pada keluarga.

Hasil uji statistik *Kruskal Wallis* pada nilai *pretest* kelompok intervensi dengan kelompok kontrol didapatkan *p value* = 0,589 dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa *p value* lebih besar dari nilai taraf signifikan (0,589 > 0,05). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah tidak terdapat perbedaan yang signifikan pada hasil *pretest* tindakan keluarga dalam mencegah hipertensi antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol.

Hasil analisis perbedaan nilai *posttest* tindakan keluarga miskin dalam mencegah hipertensi pada tabel 4.17, diketahui bahwa hasil *posttest* sebanyak 11 responden (100%) pada kelompok intervensi (*family centered empowerment model*) menunjukkan tindakan baik dalam mencegah hipertensi pada keluarga. Namun tidak terdapat responden dengan sikap baik dalam mencegah hipertensi pada kelompok kontrol.

dalam mencegah hipertensi pada keluarga.

Pada kelompok kontrol masih terdapat 6 responden (100%) dengan tindakan kurang dalam mencegah hipertensi pada keluarga.

Hasil uji statistik *Kruskal Wallis* pada nilai *posttest* kelompok intervensi dengan kelompok kontrol didapatkan *p value* = 0,001 dengan taraf signifikan sebesar 0,05. Hal ini menunjukkan bahwa *p value* kurang dari nilai taraf signifikan (0,001 < 0,05). Kesimpulan yang dapat diambil dari uji statistik tersebut adalah terdapat perbedaan yang signifikan pada hasil *posttest* tindakan keluarga dalam mencegah hipertensi pada keluarga antara kelompok intervensi 2 (*family centered empowerment model*) dan kelompok kontrol.

Perbedaan tingkat pengetahuan akhir keluarga dalam mencegah hipertensi pada keluarga antara kelompok intervensi (*family centered empowerment model*) dan kelompok kontrol disebabkan karena pemberian intervensi menggunakan suatu model pendekatan khusus. Pelaksanaan intervensi pada kelompok intervensi menunjukkan bahwa banyak responden yang antusias selama pelaksanaan. Antusias responden untuk memperhatikan selama pemberian intervensi dikarenakan adanya penekanan strategi tertentu pada intervensi. Strategi yang menekankan pada pengetahuan dan pendalaman pengetahuan dilakukan pada sesi kedua, ketiga, keempat dan kelima dalam intervensi pertama dan sesi ketiga dalam intervensi kedua. Pada sesi pendalaman pengetahuan masing-masing intervensi diberikan informasi kesehatan tentang hipertensi, tanda dan gejala hipertensi, komplikasi hipertensi, cara menurunkan tekanan darah menggunakan obat antihipertensi, manajemen stres, manajemen beban, dan peran keluarga terhadap anggota keluarga dengan hipertensi. Hal ini menunjukkan bahwa reaksi responden termasuk keaktifan dan antusias dalam proses pemberian pendidikan kesehatan ikut menentukan keberhasilan dan tercapainya tujuan (Riggio, et al., dalam Widyaningrum, 2015).

Sikap adalah tingkatan kedua dalam perilaku. Menurut (Rompas, dkk., 2014), menyatakan bahwa seseorang akan mengubah sikap jika seseorang tersebut mampu mengubah komponen kognitifnya. Salah satu cara untuk mengubah komponen

kognitif adalah pemberian informasi melalui pendidikan kesehatan. Informasi yang diberikan dalam pendidikan kesehatan melalui model pendekatan tertentu dapat memberikan pengaruh sugestif pada pengetahuan atau kemampuan kognitif seseorang. Peningkatan pengetahuan atau kemampuan kognitif tersebut dapat memberikan dasar yang cukup kuat dalam menilai suatu hal dan membentuk suatu sikap positif dalam menilai suatu hal tertentu. Pemberian informasi kesehatan melalui pendidikan kesehatan menggunakan model pendekatan tertentu dapat meningkatkan pengetahuan subjek.

Peningkatan pengetahuan yang terjadi, selanjutnya akan menimbulkan kesadaran subjek yang menyebabkan subjek akan menunjukkan sikap yang lebih baik sesuai pengetahuan yang dimilikinya (Santi, 2014). Perbedaan sikap pada kelompok intervensi dan kelompok kontrol tersebut, disebabkan karena pemberian pendidikan kesehatan dengan model pendekatan pada keluarga tentang pencegahan hipertensi.

Peningkatan tindakan pencegahan responden terhadap hipertensi pada keluarga dibuktikan dengan adanya responden memiliki tindakan baik dalam melakukan pencegahan hipertensi pada keluarga. Tindakan pencegahan yang dilakukan responden dibentuk oleh domain penting, yaitu pengetahuan atau kognitif. Tindakan

yang didasari oleh pengetahuan akan lebih baik daripada tindakan yang tidak didasari pengetahuan. Informasi yang diberikan melalui model pendidikan kesehatan dengan pendekatan keluarga menjadi acuan dalam melakukan aplikasi tindakan pencegahan hipertensi pada keluarga (Rahayu, 2011). Tindakan yang telah dilakukan oleh responden dalam mencegah hipertensi pada keluarga diharapkan dapat dipertahankan sebagai faktor dukungan (*support*) keluarga terhadap anggota keluarga yang sakit untuk mencapai derajat kesehatan yang baik.

4. KESIMPULAN DAN SARAN

Terdapat perbedaan perilaku (pengetahuan, sikap, dan tindakan) keluarga miskin dalam mencegah hipertensi pada keluarga sebelum dan sesudah dilakukan intervensi *family centered empowerment model*. Intervensi *family centered empowerment model* berpengaruh dalam merubah perilaku keluarga miskin dalam mencegah hipertensi pada keluarga.

Saran yang dapat diberikan sesuai dengan hasil penelitian adalah perlu adanya pelatihan bagi petugas kesehatan tentang cara melaksanakan intervensi *family centered empowerment model* pada keluarga, karena keluarga merupakan *support system* yang paling dekat bagi anggota keluarga yang sakit.

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Effect of Family-Oriented Health Education Program on Awareness, Adherence to Treatment and Control among Hypertensive Patients

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Abstract

Background: Hypertension is a major health problem in Egypt with low rates of awareness, adherence, and control. Family oriented health education program is needed to know the effect of family involvement on the outcome of hypertension. **Aim of the study:** to improve care provided to hypertensive patients in family practice settings. **Subjects and methods:** This study was conducted as an intervention study. The awareness, adherence to treatment and control of hypertension were assessed before and after the intervention program through a structured interview with hypertensive patients and their families (at least one family member attended once/month over 6 months). The study was conducted at two family practice settings (the family practice outpatient clinic and El Mahsama family practice center, both are affiliated to Suez Canal University, Egypt). There were 206 hypertensive patients, who were recruited to reach the estimated sample size (190 patients) to start the intervention program. **Results:** The overall awareness, adherence, and control before the intervention were 60.2%, 37.1%, and 12.9% respectively. One month after the end of the intervention program, all non-aware patients became aware ($p < 0.001$) and the pre-post adherence and BP control improved significantly ($p < 0.01$ and $p < 0.001$ respectively). The rural residence and adherence improvement were statistically significant positive predictors of improvement of hypertension control. **Conclusion:** The family oriented-health education program is effective to improve awareness, adherence, and control of hypertension.

Keywords: Hypertension, Adherence, Control, Family oriented, Health education

Introduction

The detection and control of hypertension is a major public health challenge⁽¹⁾. Up to three-quarters of the world's hypertensive population will be in developing countries by the year 2025⁽²⁾, and Egypt is one of these developing countries. The prevalence of hypertension in Egypt is 26.3% with low rates of awareness (37.5%), adherence (23.9%), and control (8%)⁽³⁾. The Healthy

People 2010 report targets a control rate of 50% within 5 years, which would be reached if at least 80% of hypertensive individuals will be aware of their condition, 90% will be treated, and 70% of those treated will be controlled^(4,5). The chronic care model puts emphasis on the involvement of the community as well as the family members in the management plan⁽⁶⁾. Behavioral risk factors tend to cluster within families because members share similar

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diets, physical activities, and tobacco use⁽⁷⁾. Studies on family involvement were conducted on children and adolescents with chronic medical diseases^(8,9), as well as caregivers of elderly individuals with dementia, stroke, or cancer, or those undergoing palliative care⁽¹⁰⁾. Little attention, however, has been paid to the effect of family involvement on chronic physical diseases among adults. To the best of my knowledge, this is the first study discussing the effect of family oriented care on a chronic disease in Egypt.

Subjects and Methods

Patients with hypertension (BP $\geq 140/90$ mmHg) were recruited from two family practice settings (the family practice outpatient clinic and El Mahsama Family practice center, which are both affiliated to Suez Canal University, Egypt). These settings were selected because both of them provide a comprehensive care to patients with chronic diseases (e.g. hypertension) as well as they are the sites of the researcher's work (which give more accessibility). Patients >18 years, both genders, with essential hypertension and mentally competent were included in the study, while pregnant and patients with history of disabling complications (e.g. stroke, end stage renal disease, retinopathy) were excluded because of pregnancy induced hypertension and inability to participate in the program respectively. A convenience sample was conducted, from which 206 hypertensive patients were recruited until the calculated sample size (190 participants) of unaware, non-adherent, and uncontrolled hypertensive patients was fulfilled. The participants and their families (At least one family member attended once/month over 6 months) were interviewed to assess socio-demographic, dis-

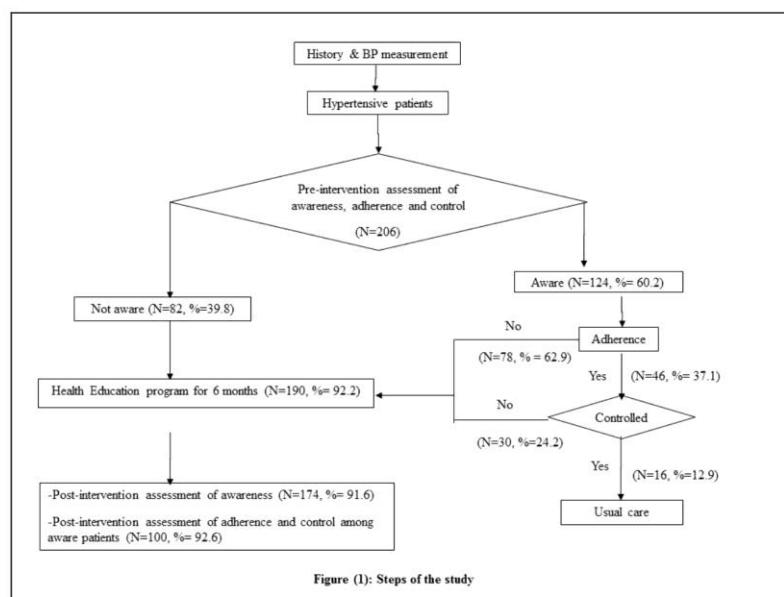
ease and medication characteristics, as well as patient's awareness and family member's role. The modified Hill-Bone compliance scale, which is a valid tool in English, was translated into Arabic and used to assess the level of adherence. It is comprised of 10 items. Responses ranged from none of the time (scoring 1) to all of the time (scoring 4), so adherence scores of 10 indicated perfect adherence and greater than 10 indicated imperfect adherence^(11, 12). Blood pressure was measured according to a standard method to assess BP control (BP $<140/90$)⁽¹³⁾. The health education program was conducted once/ month for 6 months, using different educational methods e.g. discussions, counseling and distribution of materials. The contents of the program were tailored according to each patient's level of knowledge and based on social cognitive theory⁽¹⁴⁾. Pilot study was conducted on 20 patients (not included in the sample) to ensure understandability and relevance of the questions. An intervention study was used in which awareness, adherence to treatment and control of hypertension were assessed before and after the intervention program. Figure(1)gives additional details about the steps.

Operational definitions

Awareness: is based on the subjects report of a prior diagnosis of hypertension made by a health professional⁽¹²⁾.

Adherence: is defined as the extent to which a person's behavior-taking medication, following a diet, and/or executing lifestyle changes-corresponds with agreed recommendations from a health care provider⁽²¹⁾.

Control of hypertension: defined as pharmacological treatment associated with SBP <140 mmHg and a DBP <90 mmHg⁽¹⁴⁾.



Statistical Analysis

The statistical package for social sciences (SPSS 20.0.0) was used for analysis of data. Descriptive tables in the form of frequencies and percentages were used for qualitative variables, and means and standard deviations for quantitative variables. Pre-post results were compared using chi-square test. P-value <0.05 was considered statistically significant.

Results

The total sample before the intervention was 206 hypertensive patients in which the overall awareness, adherence and control before the intervention were 60.2% (124 out of 206 patients), 37.1% (80/124 aware patients) and 12.9% (16/124 aware patients)

respectively. Table 1 demonstrates the socio-demographic, disease and medication characteristics of patients who participated in the study before intervention. The mean age was 54.3 ± 8.2 , with a range between 40-80 years. Female patients represented 51.5% and less than two-thirds (63.1%) were illiterate or had basic education; also less than two thirds were married (64.1%). The non-employed patients (house wives, retired and non-employed) represented 52.9%. About half of patients (51%) had insufficient income, while the non-smokers represented 54.9%. More than half of patients (53.4%) had no co-existing diseases. The duration since diagnosis was from 5-10 years in 47.6% of patients. More than half of patients (53.2%) received two or more medications, while less than two-thirds (62.9%) received two or more doses per

day. The medications were covered by health insurance in about two thirds of patients (64.5%) and more than two thirds (68%) had a positive family history. The response rate was 91.6% (174 participants), in which the post-intervention assessment for awareness was conducted, while the post-intervention assessment for adherence, and control was conducted on aware patients only (100 patients). Table 2 illustrates the pre-post awareness, adherence, and control of hypertension among patients who participated in the intervention. According to the table, awareness of hypertension has shown a statistically significant improvement, $p < 0.001$. Thus, before the intervention only more than half (57.5%) were aware. This improved to 100% awareness after the intervention. In addition, the adherence among hypertensive patients who participated in the intervention has shown a statistically significant improvement ($P = 0.01$). The imperfect adherence had been improved from 24% before the intervention to 58% after the intervention. Furthermore, 100% of the participants had uncontrolled BP. This was reduced to 84% after the intervention. This improvement is statistically significant, $p < 0.001$.

Discussion

Awareness rate in the total study sample was 60.2% which is higher than that reported in the Egyptian national survey conducted between 1991-1993 and the national Saudi survey (37.5%, 44.7% respectively)^(3,16). In explaining this difference, this study is a health care setting-based study, where more people are health care seekers, which resulted in more awareness, adherence, and control, while the other studies were community based, where asymptomatic patients are less aware.

Characteristics	Frequency	
	No.	%
Gender		
- Male	100	48.5
- Female	106	51.5
Age		
- Range	40-80	
- Mean \pm SD	54.3 \pm 8.2	
Marital status		
- Single	17	8.3
- Married	132	64.1
- Widow	55	26.7
- Divorced	2	1
Educational level*		
- Level 0-2	130	63.1
- Level 3-5	56	27.2
- Level 6-8	20	9.7
Occupation		
- Employed	97	44.9
- Unemployed	109	55.1
Perceived income		
- Sufficient	101	49
- Insufficient	105	51
Smoking		
- Smoker	93	45.1
- Non-smoker	113	54.9
Co-morbidities		
- Yes	96	46.6
- No	110	53.4
Family history		
- Positive	140	68
- Negative	66	32
Duration (years)		
- <5	36	29
- 5-10	59	47.6
- 10+	29	23.4
No. of medications		
- 1	58	46.8
- 2+	66	53.2
No. of daily doses		
- 1	46	37.1
- 2+	78	62.9
Insurance coverage		
- Insured	80	64.5
- Not insured	44	35.5

*Level 0-2: no education, primary or preparatory education; level 3-5: secondary, post secondary education or technical programs; level 6-8: bachelor, master, or doctoral degree⁽¹⁵⁾.

Table 2: Pre-post awareness, adherence, and control among hypertension patients in the sample who participated in the intervention

	Awareness		Adherence		Control	
	Aware	Not aware	Perfect	Imperfect	Controlled	Uncontrolled
Pre	100	74	24	76	ND	100
Post	174	ND	42	58	16	84
χ^2	94		7.3		17.4	
P value	<0.001*		0.01*		<0.001*	

ND= Not Detected; * statistically significant at $P < 0.05$.

On the other hand this finding is lower than awareness rates in the US 2009-2010 (81.9%) and Zaria, Nigeria (71.1%)^(17,18). In the current study 37.1% of the aware patients in the total study sample were adherent, while only 12.9% were controlled. These results were higher than those reported in the Egyptian national survey (23.9% and 8% for adherence and control correspondingly)⁽³⁾. This is explained by the higher awareness rates in our study in comparison with other studies

The results of this study are not satisfactory in comparison with the US recording 76.4% and 53.3% for adherence and control respectively between 2009-2010⁽¹⁷⁾. In addition adherence and control rates were better in Saudi Arabia 72% and 37% respectively⁽¹⁹⁾. However, our results were comparable with Seychelles which is a developing country (34% adherence, and 10% controlled)⁽²⁰⁾. The difference between developed and developing countries in many aspects, e.g. socio-economic status, could explain this. In the present study, the pre-post awareness, adherence, BP control among patients in the total sample was analyzed. All non-aware patients became aware about hypertension, and this improvement was statistically significant ($p < 0.001$). This is in line with previous findings in the literature, which show that pa-

tient education programs can be utilized to increase patients' awareness about hypertension⁽²¹⁻²³⁾. The pre-post adherence has shown a statistically significant improvement after the intervention ($p = 0.01$). This could be due to the improvement in the level of awareness. However, WHO reported that information alone is not enough for creating or maintaining good adherence habits⁽²³⁾. In addition, two other studies showed no improvement in adherence levels after an educational intervention^(23,24). The BP control has shown also a statistically significant improvement after the intervention ($p < 0.001$).

This coincides with many studies showing the effect of health education programs with different approaches to patients, families, health professionals and community in Australia, Iran, Spain, USA and Brazil which revealed better blood pressure control rates⁽²⁴⁻²⁹⁾. This conflicting results may be explained by using different approaches of interventions to improve awareness, adherence and control (e.g. education in self-management; pharmacy management programs; nurse, pharmacist and other non-medical health professional intervention protocols; counseling; behavioral interventions; follow-up and reminders, among others). Also, in a landmark study conducted by Morisky et al⁽³⁰⁾, pa-

tients were assigned to three adherence-promoting interventions: physician counseling, family support for monitoring pill taking, group sessions with a social worker or to a control group. The 5-year analysis showed a continuing positive effect on appointment keeping, weight control, and blood-pressure control in the intervention groups. Study patients assigned to any of the experimental groups displayed a statistically significant 30% increase in BP control at the two-year follow-up, and a statistically significant 65% increase in BP control over the five-year period. Analysis of the main effects of the educational program demonstrated that the family member support intervention accounted for the greatest decrease in diastolic blood pressure variability⁽³⁰⁾.

Conclusions

Interventions focused on family oriented care might be a successful approach to improving the management of hypertension. The care of patients with chronic diseases should be shifted from addressing only the individual patient to addressing the broader social context in which the patient lives and in which the disease is managed. The study recommends raising the awareness of diseases by health education programs, Family support should be encouraged to improve the outcome of diseases. Health care providers should manage chronic diseases in a familial context. Further studies can be carried out over a longer period to investigate whether or not this will have long-term effect on participants' levels of adherence and health outcomes.

Limitations of the Study

Some participants were accompanied by a family member however, we confirm that the patient should accompany the same family member every session, and that the

contents of the missed session to be summarized to the main family member. Furthermore, the participants were highly selected patients attending a health care setting. Therefore, the results of this study cannot be extrapolated to other patients.

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Table 3: Relation between characteristics of patients in the total study sample and adherence to treatment after intervention (n=100)

Characteristics	Adherence		χ^2	P value
	Perfect No. (%)	Imperfect No. (%)		
Gender			7.8	0.005*
Male	18 (42.9)	41 (70.7)		
Female	24 (57.1)	17 (29.3)		
Age (Mean \pmSD)	57.2(\pm 8.9)	56.5(\pm 8.5)	0.4 [@]	0.7
Educational level			1.04	0.6
Level 0-2	24 (57.1)	29 (50)		
Level 3-5	14 (33.3)	25 (43.1)		
Level 6-8	4 (9.5)	4 (6.9)		
Marital status			6.5	0.09
Single	0	7 (12.1)		
Married	26 (61.9)	33 (56.9)		
Widow& divorced	16 (38.1)	18 (31)		
Occupation			2.2	0.1
Employed	14 (33.3)	28 (48.3)		
Unemployed	28 (66.7)	30 (51.7)		
Perceived income			7.1	0.008*
Sufficient	14 (33.3)	35 (60.3)		
Insufficient	28 (66.7)	23 (39.7)		
Smoking			15.1	<0.001*
Smoker	14 (33.3)	42 (72.4)		
None	28 (66.7)	16 (27.6)		
Co-morbidities			4.8	0.03*
Yes	26 (61.9)	23 (39.7)		
No	16 (38.1)	35 (60.3)		
Family history			8.7	0.003*
Positive	27 (64.3)	20 (34.5)		
Negative	15 (35.7)	38 (65.5)		
Duration (years)			0.96	0.6
<5	9 (21.4)	13 (22.4)		
5-	20 (47.6)	32 (55.2)		
10+	13 (31)	13 (22.4)		
No. of medications			1.1	0.3
1	24 (57.1)	27 (46.6)		
2+	18 (42.9)	31 (53.4)		
No. of daily doses			11.1	0.001*
1	23 (54.8)	13(22.4)		
2+	19(45.2)	45 (77.6)		
Insurance coverage			0.2	0.6
Insured	27(64.3)	40 (69)		
Not insured	15 (35.7)	18 (31)		
Perceived role of family member			2.6	0.1
Supportive	22 (52.4)	21 (36.2)		
Non-supportive	20 (47.6)	37 (63.8)		

* = Statistically significant at P < 0.05; @ = t-test.

Table 4: Characteristics of patients and hypertension control after intervention (N=100).

Characteristics	Control		χ^2	P value
	Yes	No		
Gender			6.1	0.01*
Male	5 (31.2)	54 (64.3)		
Female	11 (68.8)	30 (35.7)		
Age (Mean \pmSD)	54.3(\pm 6.8)	57.1 (\pm 8.8)	-1.2 [®]	0.2
Educational level			6.4	0.04*
Level 0-2	13 (81.2)	40 (47.6)		
Level 3-5	3 (18.8)	36 (42.9)		
Level 6-8	0 (0)	8 (9.5)		
Marital status			1.7	0.6
Single	0 (0)	7 (8.3)		
Married	10 (62.5)	49 (58.3)		
Widow& divorced	6 (37.5)	28 (33.3)		
Occupation			4.2	0.04*
Employed	3 (18.8)	39 (46.4)		
Unemployed	13 (81.2)	45 (53.6)		
Perceived income			2.4	0.1
Sufficient	5 (31.2)	44 (52.4)		
Insufficient	11 (68.8)	40 (47.6)		
Smoking			1.2	0.3
Smoker	7 (43.8)	49 (58.3)		
None	9 (56.2)	35 (41.7)		
Co-morbidities			4.4	0.04*
Yes	4(25)	45(53.6)		
No	12 (75)	39 (46.4)		
Family history			6	0.014*
Positive	12 (75)	35 (41.7)		
Negative	4 (25)	49 (58.3)		
Duration (years)			9.1	0.001*
<5	2 (12.5)	20 (23.8)		
5-	5 (31.2)	47 (56)		
10+	9 (56.2)	17 (20.2)		
No. of medications			0.008	0.9
1	8 (50)	43 (51.2)		
2+	8 (50)	41 (48.8)		
No. of daily doses			0.02	0.9
1	6 (37.5)	30 (35.7)		
2+	10(62.5)	54 (64.3)		
Insurance coverage			0.5	0.5
Insured	12 (75)	55 (65.5)		
Not insured	4 (25)	29 (34.5)		
Perceived role of family member			9	0.003*
Supportive	16 (100)	52 (61.9)		
Non-supportive	0	32 (38.1)		

Data are presented as No. (%); *=statistically significant at $p < 0.05$; [®] t-test.

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ORIGINAL ARTICLE

Family member-based supervision of patients with hypertension: a cluster randomized trial in rural China

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Empirical evidence has suggested that social support from family can help patients take their medicines correctly. This study aims to evaluate the role of a family member-based supervision package in the management of hypertension using a cluster randomized trial in rural China. We recruited patients with hypertension from four villages in Yangzhong and randomly allocated them to the control group ($n = 288$) and the intervention group ($n = 266$). A family member-based supervision package was applied to the intervention group, while the usual service was applied to the controls. Patients were followed for 12 months and completed face-to-face interviews at the end of 6 and 12 months. The primary outcomes were patients' medication adherence and frequency of blood pressure measurement. Secondary outcomes included changes in blood pressure, altered risk behaviours and occurrence of hypertension-related complications. To control for the effects of cluster randomization, multilevel mixed-effects regression models were used to compare group changes. We observed that the intervention improved patients' blood pressure measurement frequency (OR: 9.00, 95% CI: 4.52–17.91) and adherence to antihypertensive treatment (OR: 1.74, 95% CI: 0.91–3.32). Its effect on the blood pressure control rate was significant at the mid-term investigation (OR: 0.67, 95% CI: 0.40–0.93), but the long-term effect was not significant (OR: 0.89, 95% CI: 0.64–1.26). After 6 months of intervention, either systolic or diastolic blood pressure was significantly decreased in the intervention group. However, this difference was not significant at the final investigation. Findings from this study revealed that the family member-based supervised therapy may have positive effects on patients' adherence to blood monitoring and hypertensive medications.

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INTRODUCTION

Despite progress in the prevention and treatment of elevated blood pressure, hypertension remains a major health challenge worldwide.^{1–3} High blood pressure has been related to an increased risk of mortality and morbidity from stroke, coronary heart disease, congestive heart failure and end-stage renal disease and has been shown to have a negative impact on health-related quality of life.^{1,4–6} Hypertension has been identified as a major risk factor in China, accounting for 24.6% of deaths and 12.0% of Disability-Adjusted Life Years in 2010.⁷ Nearly 2.3 million total cardiovascular deaths and 1.3 million premature cardiovascular deaths are attributable to raised blood pressure in China every year.⁸ The prevention and control of hypertension is a top public health priority in China.

Most hypertensive patients need two or more drugs to control their blood pressure and concomitant statin treatment to reduce cardiovascular risk factors. Despite the availability of various effective and safe antihypertensive drugs, hypertension and its concomitant risk factors remain uncontrolled in most patients.⁹ Worldwide successful control of hypertension is poor, with only 5–58% of people taking antihypertensive medications achieving a blood pressure < 140/90 mm Hg.¹⁰ One of the major factors in this poor control is lack of patient adherence to treatment.¹¹ Adherence can be defined as the extent to which a

person's behaviour corresponds with agreed recommendations from a health-care provider.¹² The poor medication adherence of hypertensive patients is a major cause of unsatisfactory blood pressure control.^{13–15} Previous studies have reported that up to 50% of patients discontinue treatment within the first year.¹² Thus, long-term antihypertensive treatment should be monitored, as blood pressure can be effectively controlled through better adherence.^{16,17}

Hypertensive patients may fail to take their medication due to the long duration of therapy, the symptomless nature of the condition, adverse drug reactions, complicated drug regimens, a lack of understanding about hypertension management, a lack of motivation and the challenge to their health beliefs.¹⁸ Typically, patients seek health care at different levels of a hospital based on their knowledge of and attitudes toward the disease, health insurance, economic background and accessibility of physicians or health-care institutions. There exists an obvious gap between the health care need and the services provided by community health facilities.^{19,20} It was estimated that only 20% of patients' health care occurred in a doctor's office and that the other 80% was performed at patients' homes.²¹ Traditional medical care focuses on one-on-one doctor/patient interactions during the medical centre visit, missing many opportunities to positively influence patient care. Empirical evidence has suggested that

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social support from family and friends can help patients take their medicines correctly.^{22,23} Thus, family-based case management is of particular interest because it is easy to access and provides assistance to patients in the management of their chronic conditions with the goal of achieving better outcomes.²⁴ In a pilot study, we observed the acceptability and feasibility of family member-based supervision of patients with hypertension in a rural Chinese population.²⁵ However, this finding was based on a quasi-experimental study design and has not been validated.

Thus, we performed a randomized control trial in a rural county of China with the aims of evaluating whether family member-based supervision improves patients' adherence to regular blood pressure monitoring and antihypertensive medications as well as the effect of such supervision on blood pressure management.

MATERIALS AND METHODS

Study design

A cluster randomized trial was performed in a rural Chinese population. We registered this study through the Chinese Clinical Trial Register (<http://www.chictr.org.cn/>). The registration number was ChiCTR-TRC-13003051. The manuscript was drafted following the CONSORT Checklist (<http://www.consort-statement.org/>).

Ethical consideration

The Institutional Review Board of Nanjing Medical University approved the study. Written informed consent was obtained from all participants. The investigation was conducted according to the principles expressed in the Declaration of Helsinki.^{26,27}

Study sites

We purposely selected Yangzhong as the study area. Yangzhong is a county-level city in Jiangsu Province. It is located in the middle south of Jiangsu and in the cradle of the Yangtze River. It occupies an area of approximately 332 square kilometres. From the five towns in Yangzhong, we randomly selected two (Xinba and Baqiao) as the study settings. From each of the two towns, we randomly selected two villages. Then, these four villages were randomly assigned to the control group (two villages) and the intervention group (two villages). The randomization function in Excel 2013 was used to generate the random allocation sequence. The sequence was concealed until interventions were assigned.

Study subjects

We identified eligible patients with prevalent essential hypertension in the study areas through the local disease surveillance system. After patients provided informed consent, they were invited to participate in a baseline investigation. The inclusion criteria were as follows: (1) patients with essential hypertension (defined as a rise in blood pressure of unknown cause that increases risk for cerebral, cardiac and renal events; blood pressure $\geq 140/90$ mm Hg²); (2) living with family members; and (3) willing to participate in this study. The exclusion criteria were as follows: (1) with severe complications of hypertension such as hypertensive heart disease, stroke or renal failure and (2) could not be followed for 12 months.

Sample size

The sample size was estimated using an online tool (<http://www.openepi.com/>) based on the following parameters: (1) percent of unexposed with outcome, $p_1 = 60\%$; (2) percent of exposed with outcome, $p_2 = 75\%$; (3) $\alpha = 0.05$; (4) $\beta = 0.2$. The estimated sample size was 152 in each arm, which was calculated according to the Fleiss formula. To take into account the lack of independence between patients in clusters, the 'variance inflation factor' (design effect, deff) was considered to increase the sample size. The deff was defined as $1 + (n - 1)\rho$, where n was the average cluster size and ρ was the intracluster correlation coefficient for the particular outcome.²⁸ Based on the findings from the pilot study, we defined the average cluster size as 130 and intracluster correlation coefficient as 0.008. Then, the estimated sample size was 308 in each arm. Considering the possibility of loss to follow-up, 10% more cases were added. Thus, the estimated sample size was 340 for each group.

Intervention

A modified family member-based education package, which was designed in the pilot study,²⁵ was applied to the intervention group. The intervention that lasted for 12 months included the following aspects: (1) observer selection: each patient designated a family member as the supervisor. The supervisor could be the patient's spouse, child, parent or other family member; (2) supervisor training: both the patient and the selected family member were trained regularly. They were invited to attend the group educational sessions at the local village clinics. Doctors from the town hospitals and Center for Disease Control and Prevention gave the lectures. The content of the lectures covered the current situation of hypertension, risk factors of the disease, methods of prevention and treatment and the adverse effects of uncontrolled blood pressure. Furthermore, we regularly recommended the SMS (Short Messages Service) on knowledge of hypertension control and prevention to family supervisors and patients; (3) supervision: the designated family member supervised the patient's adherence to the antihypertensive medication and blood pressure measurement; (4) reminding: family supervisors were responsible for reminding patients to seek health care in a timely manner and to regularly monitor their blood pressure. If blood pressure could not be well controlled, they should urge patients to seek professional doctors in a timely fashion; (5) accessory appliances: we designed a calendar to help observers record patients' blood pressure values and treatment adherence (we listed some printed materials, photos of lectures and calendar in Supplementary File 1). Patients in the control group adopted the usual health-care services (self-administered therapy) without specific interventions.

Data collection

Trained master students from Nanjing Medical University administered a questionnaire to all participants. The modified questionnaire was designed based on the previous pilot study.²⁵ We collected patients' demographic characteristics, socioeconomic status, treatment history, frequency of blood pressure measurement, adherence to antihypertensive drugs and attitudes toward the expected family member-based service package. Patients were followed for 12 months and completed face-to-face interviews at the end of 6 and 12 months. The primary outcomes were patients' medication adherence and frequency of blood pressure measurement. Secondary outcomes included changes in blood pressure, health behaviours and hypertension-related complications. We examined patients' self-reported medication adherence during last month prior to the interview. A participant was considered non-adherent if he or she reported missing one or more pills per week or if he or she was not currently taking previously prescribed antihypertensive medication. Complications of hypertension were defined as clinical outcomes that resulted from persistent elevation of blood pressure, including hypertensive heart disease, stroke and renal failure. After 6 and 12 months of observation, we also asked participants whether they had changed their behaviours such as reducing salt consumption, increasing physical activities and controlling tobacco smoking as compared with the state of the baseline survey.

Statistical methods

Data were entered with Epidata 3.1 (Epidata Association, Odense, Denmark) and analysed using STATA 11.0 (College Station, TX, USA). Baseline characteristics between groups were compared using t-tests (for continuous variables) or Chi-square tests (for categorical variables). To control for the effects of cluster randomization, mixed linear and nonlinear modelling for normally and non-normally distributed data, respectively,²⁹ we used a multilevel mixed-effects linear regression model (xtmixed module in STATA software). For the binary responses, such as treatment adherence, blood pressure measurement or blood pressure control rate, we used the multilevel mixed-effects logistic regression models (xtmelogit module in STATA software). The effects of intervention were estimated as odds ratios (ORs) and 95% confidence intervals (CIs) as well as the corresponding *P*-values. The test level was set at 0.05. Subgroup analysis was performed to compare the effects of intervention on patient's behaviour between men and women. The forest plot was drawn using the meta-analysis module in STATA software.

RESULTS**Study progress and general information**

This study began in January 2013 and ended in January 2014. First, we identified 370 hypertensive patients in the control villages and 385 hypertensive patients in the intervention villages. After excluding ineligible patients, we enrolled 288 patients in the control group and 266 patients in the intervention group. The average age was 67.3 ± 9.7 years in the control group and 66.2 ± 9.2 years in the intervention group. As shown in Table 1, there was no significant difference in the distribution of sex, age, marital status, educational background or tobacco smoking history between the two groups. During the follow-up period, six patients in the control group died. The flow chart of this study is illustrated in Figure 1.

Frequency of blood pressure measurement

At the baseline investigation, the blood pressure measurement frequency of the two groups was similar ($\chi^2 = 4.55$, $P = 0.208$). However, after the intervention, there was a significant difference. For example, among patients in the intervention group, the proportion that measured their blood pressure more than one time per month increased from 56.0 to 95.8% at the mid-term investigation and to 96.2% at the final stage investigation. Among patients in the control group, the proportion that frequently obtained blood pressure measurements more than one time per month only increased to 66.3% at the mid-term investigation and to 74.7% at the final stage investigation (Table 2). After controlling for the effects of cluster randomization and baseline data, the adjusted OR (95% CI) of the intervention was 12.4 (6.4–23.8) for the mid-term evaluation and 9.0 (4.5–17.9) for the final evaluation (data not shown).

Adherence to antihypertensive treatment

Considering the baseline difference in medication adherence between the two groups, we used a multilevel mixed-effects logistic regression model to adjust for the baseline data. After controlling for the effects of cluster randomization and baseline adherence, the adjusted OR (95% CI) was 3.8 (2.5–5.8) for

the mid-term evaluation and 1.7 (0.9–3.3) for the final evaluation (Table 3).

Blood pressure pre- and post-intervention

After 6 months of the intervention, either systolic or the diastolic blood pressure was significantly decreased in the intervention group. However, this difference was not significant at the final investigation (Table 4).

Blood pressure control rate

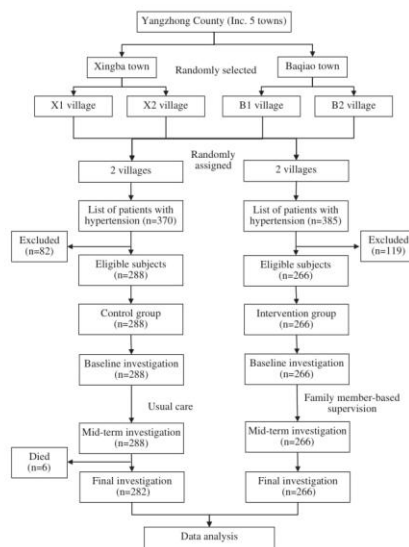
At the baseline investigation, the blood pressure control rate was higher in the control group than in the intervention group. Thus, we performed a multilevel mixed-effects logistic regression analysis to adjust for the baseline data. A positive significant effect was observed on the blood pressure control rate at the mid-term investigation (OR = 0.7, 95% CI: 0.4–0.9), but the long-term effect was not significant (OR = 0.9, 95% CI: 0.6–1.3) (Table 5).

Hypertension-related complications

During the follow-up period, 32 patients in the control group developed hypertension-related complications (stroke: 20; coronary heart disease: 6; death: 6) and 26 patients in the intervention group developed hypertension-related complications (stroke: 18; coronary heart disease: 7; hypertensive renal disease: 1). There was no significant difference in incidence between the two groups ($Z = -0.51$, $P = 0.608$). However, the case fatality rate was significantly higher in the control group than in the intervention group (20.3% vs 0%, Fisher's exact test $P = 0.031$) (data not shown).

Table 1. Basic characteristics of study subjects

Characteristics	Control group N = 288, n (%)	Intervention group N = 266, n (%)	χ^2	P
Sex			0.05	0.822
Male	137 (47.57)	124 (46.62)		
Female	151 (52.43)	142 (53.38)		
Age			0.15	0.700
< 60	60 (20.83)	59 (22.18)		
≥ 60	228 (79.17)	207 (77.82)		
Marital status			2.33	0.312
Single	3 (1.04)	4 (1.50)		
Married	222 (77.08)	217 (81.58)		
Divorced or bereft of spouse	63 (21.88)	45 (16.92)		
Education			4.35	0.226
Illiterate	74 (25.69)	53 (19.92)		
Primary school	132 (45.83)	119 (44.74)		
Junior high school	61 (21.18)	73 (27.44)		
Senior high school or above	21 (7.29)	21 (7.89)		
Tobacco smoking			< 0.01	0.996
No	197 (68.4)	182 (68.42)		
Yes	91 (31.6)	84 (31.58)		

**Figure 1.** Flow chart of the study design.

Behaviour changes after intervention

After 6 months of observation, patients in the intervention group had significantly reduced salt consumption (OR: 4.0, 95% CI: 2.6–6.1), increased physical activities (OR: 2.5, 95% CI: 1.7–3.7) and an increased tobacco smoking control rate (OR: 4.9, 95% CI: 2.1–11.1). However, the long-term effect was only significant for reduced salt consumption (OR: 2.4, 95% CI: 1.3–4.4) (Table 6).

Subgroup analysis by sex

We further performed a subgroup analysis by patient's sex to compare the effects of intervention on the frequency of blood pressure measurement, treatment adherence, reduced salt consumption, increased physical exercises and reduced tobacco smoking. As shown in Figure 2, no significant difference was found between men and women.

DISCUSSION

In this field intervention trial, we evaluated the role of a patient's family members on the management of hypertension. Findings from this study suggest that family member-based supervision can be a way to promote medication adherence and better outcomes, but it requires more

comprehensive strategies. Further patient-centred studies are required to improve the management of patients with hypertension in China.

Poor adherence toward antihypertensive drugs is a worldwide problem.³⁰ A community-based cross-sectional study in Dharan Municipality of Eastern Region of Nepal reported that only 56.5% patients were adherent to antihypertensive medication.³⁰ The prevalence of hypertension in China is similar to that in other countries, but the control rate has remained low in the past few decades.³¹ Lack of adherence to blood pressure-lowering medication is a major reason for poor control of hypertension worldwide.¹⁸ In spite of the availability of various antihypertensive agents, patients' medication adherence and blood pressure management are inadequate.⁵ Current methods of improving adherence to treatment for chronic health problems are rather complex. Reviews have reported that much of the intervention work has generally taken a pragmatic one-size-fits-all approach to enhancing adherence; however, most of these interventions have been shown to be ineffective.^{11,18,32} A Cochrane systematic review found that simplifying dosing regimens had a relative increase in

Table 2. Changes in blood pressure measurement frequency

Frequency (times/month)	Control group N = 288, n (%)	Intervention group N = 266, n (%)	χ^2	P
Baseline				
< 1	113 (39.24)	117 (43.98)	4.55	0.208
1–	92 (31.94)	91 (34.21)		
2–	25 (8.68)	22 (8.27)		
3–	58 (20.14)	36 (13.53)		
Mid term^a				
< 1	97 (33.68)	11 (4.17)	85.08	< 0.001
1–	65 (22.57)	122 (46.21)		
2–	74 (25.69)	76 (28.79)		
3–	52 (18.06)	55 (20.83)		
Final^b				
< 1	72 (25.53)	10 (3.76)	54.04	< 0.001
1–	82 (29.08)	103 (38.72)		
2–	57 (20.21)	84 (31.58)		
3–	71 (25.18)	69 (25.94)		

^aMissing two values from patients in the intervention group. ^bSix patients who died before the final investigation were not included.

Table 4. Blood pressure values pre- and post-intervention

Blood pressure (mean \pm s.d. mm Hg)	Control group (N = 288)	Intervention group (N = 266)	Z ^a	P ^a
Baseline blood pressure				
SBP	138.3 \pm 13.2	139.6 \pm 12.0	1.19	0.233
DBP	86.0 \pm 8.6	86.4 \pm 8.0	0.56	0.577
Mid-term blood pressure				
SBP	133.2 \pm 9.8	130.9 \pm 12.2	-2.49	0.013
DBP	83.8 \pm 6.3	79.6 \pm 7.9	-5.42	< 0.001
Final blood pressure				
SBP	138.4 \pm 12.6	139.0 \pm 13.4	0.43	0.668
DBP	85.4 \pm 8.2	84.5 \pm 8.0	-1.18	0.240
Changes in blood pressure				
Mid term vs baseline				
SBP	-5.0 \pm 13.9	-8.6 \pm 13.9	-3.05	0.002
DBP	-2.3 \pm 9.1	-6.8 \pm 8.9	-4.62	< 0.001
Final vs baseline				
SBP	0.1 \pm 16.1	-0.5 \pm 15.5	-0.49	0.623
DBP	-0.7 \pm 10.6	-1.9 \pm 9.9	-1.40	0.162

Abbreviations: DBP, diastolic blood pressure; SBP, systolic blood pressure. ^aBased on the multilevel mixed-effects linear regression model.

Table 3. Differences in treatment adherence between groups

Characteristics	Control group N = 288, n (%)	Intervention group N = 266, n (%)	Z ^a	P ^a	OR (95% CI) ^{a,b}	P ^{a,b}
Baseline						
No	110 (38.19)	79 (29.70)	1.84	0.066	1.47 (0.98–2.22)	0.066
Yes	178 (61.81)	187 (70.30)				
Mid term						
No	116 (40.28)	39 (14.66)	6.48	0.000	3.82 (2.50–5.83)	< 0.001
Yes	172 (59.72)	227 (85.34)				
Final						
No	98 (34.03)	61 (22.93)	1.69	0.091	1.74 (0.91–3.32)	0.097
Yes	190 (65.97)	205 (77.07)				

^aBased on the multilevel mixed-effects logistic regression model. ^bAdjusted for the baseline adherence.

Table 5. Differences in blood pressure control rate between the two groups

Characteristics (mm Hg)	Control group N = 288, n (%)	Intervention group N = 266, n (%)	Z ^a	P ^a	OR (95% CI) ^{a,b}	P ^{a,b}
SBP						
Baseline						
< 140	177 (61.46)	129 (48.5)			1	
≥ 140	111 (38.54)	137 (51.5)	3.06	0.002	1.69 (1.21–2.37)	0.002
Mid term						
< 140	225 (78.13)	215 (80.83)			1	
≥ 140	63 (21.88)	51 (19.17)	0.09	0.925	0.93 (0.36–2.41)	0.876
Final						
< 140	165 (57.29)	149 (56.02)			1	
≥ 140	123 (42.71)	117 (43.98)	0.30	0.762	0.96 (0.68–1.36)	0.835
DBP						
Baseline						
< 90	212 (73.61)	161 (60.53)			1	
≥ 90	76 (26.39)	105 (39.47)	2.73	0.006	1.86 (1.19–2.89)	0.006
Mid term						
< 90	242 (84.03)	244 (91.73)			1	
≥ 90	46 (15.97)	22 (8.27)	-2.21	0.027	0.41 (0.24–0.72)	0.002
Final						
< 90	201 (69.79)	188 (70.68)			1	
≥ 90	87 (30.21)	78 (29.32)	-0.25	0.799	0.88 (0.60–1.27)	0.494
BP						
Baseline						
Normal	154 (53.47)	105 (39.47)			1	
Abnormal	134 (46.53)	161 (60.53)	3.29	0.001	1.76 (1.26–2.47)	0.001
Mid term						
Normal	207 (71.88)	208 (78.20)			1	
Abnormal	81 (28.13)	58 (21.80)	-0.17	0.046	0.67 (0.40–0.93)	0.024
Final						
Normal	142 (49.31)	132 (49.62)			1	
Abnormal	146 (50.69)	134 (50.38)	-0.07	0.940	0.89 (0.64–1.26)	0.524

Abbreviations: BP, blood pressure; DBP, diastolic blood pressure; SBP, systolic blood pressure. ^aBased on the multilevel mixed-effects logistic regression model. ^bAdjusted for the baseline data.

Table 6. Behaviour changes after intervention

Characteristics	Control group N = 288, n (%)	Intervention group N = 266, n (%)	Z ^a	OR (95% CI) ^a	P ^a
Mid term					
Reduced salt consumption					
No	113 (39.24)	37 (13.91)			
Yes	175 (60.76)	229 (86.09)	6.46	4.00 (2.63–6.08)	< 0.001
Increased physical activities					
No	150 (52.08)	81 (30.45)			
Yes	138 (47.92)	185 (69.55)	4.54	2.49 (1.68–3.70)	< 0.001
Reduced tobacco smoking ^b					
No	48 (68.57)	13 (30.95)			
Yes	22 (31.43)	29 (69.05)	3.75	4.87 (2.13–11.12)	< 0.001
Final					
Reduced salt consumption					
No	69 (24.56)	33 (12.41)			
Yes	212 (75.44)	233 (87.59)	2.93	2.42 (1.34–4.38)	< 0.001
Increased physical activities					
No	106 (37.22)	89 (33.46)			
Yes	175 (62.28)	177 (66.54)	1.04	1.20 (0.85–1.71)	0.298
Reduced tobacco smoking ^a					
No	24 (39.34)	12 (34.29)			
Yes	37 (60.66)	23 (65.71)	0.48	1.31 (0.43–3.97)	0.632

^aBased on the multilevel mixed-effects logistic regression model. ^bOnly analysed those who had a history of tobacco smoking at the baseline investigation.

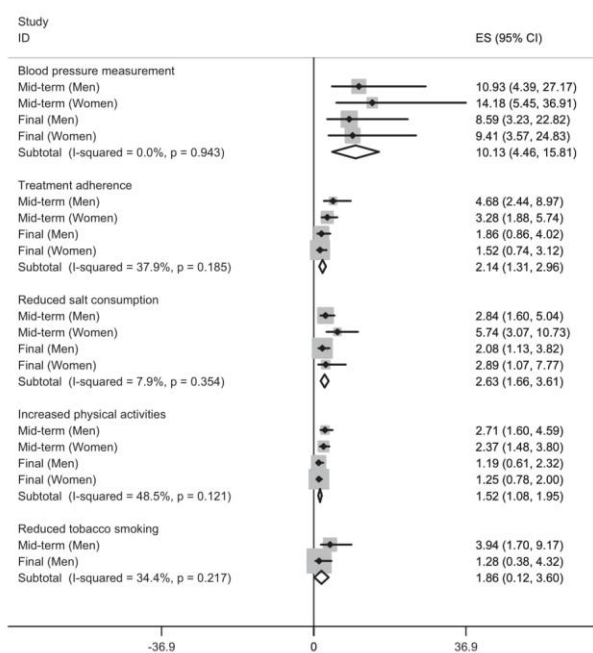


Figure 2. The forest plot of the effects of intervention on patient's behaviour between men and women. As there is only one female smoker, the effect of intervention on reduced tobacco smoking among women is not plotted.

medication adherence of 8–19.6%; motivational strategies had small increases in adherence up to a maximum of 23%; and complex interventions involving more than one technique increased adherence ranging from 5% to a maximum of 41%.¹⁸

Non-adherence seems to be a patient problem, but it is directly influenced by health-care providers and the health-care system. Researchers should continue to develop new technology and approaches to monitoring patients' treatment adherence, support better blood pressure control and decrease hypertension-related mortality and morbidity.³³ Adverse drug reactions should be identified early and managed promptly to address the safety of drugs. Treatment should be monitored, as better adherence to antihypertensive medications can lead to effective blood pressure control and a reduction in the risk of complications.¹⁶ Several interventions such as health education, family-support, self-management, health-care management changes and the training of providers have been performed in some communities of China.³⁴ In recent years, increasing number of studies have been performed to explore innovative ways to improve patients' treatment adherence and outcomes, such as physician-level and practice-level financial incentives for hypertension care,^{35,36} shared decision making in antihypertensive therapy,³⁷ an interdisciplinary education programme³⁸ and home-based blood pressure tele-monitoring.³⁹ Considering that causes of noncompliance are complicated, individualized intervention

strategies should be designed based on the characteristics of patients in the local context.

In this study, we examined a family member-based supervision package that aimed to provide social support to patients in an effective and acceptable manner. We observed a positive effect of intervention on the patients' adherence to blood pressure monitoring. However, the intervention's effect on the blood pressure control rate was only obvious at the mid-term investigation; it was not significant at the final investigation. Thus, research should consider how to achieve a long-term effect of family member-based intervention. It is noteworthy that according to the Fourth National Health and Nutrition Survey, the prevalence, treatment and control rates of hypertension were 18.8, 24.7 and 6.1%, respectively.³¹ In our study, the control rate of blood pressure was relatively high at the baseline investigation (53.5% in the control group and 39.5% in the intervention group). Also, the baseline medication adherence was higher in this study than that reported in other populations.^{30,40} These may weaken the intervention effect of the family member-based supervision.

Complications of hypertension are clinical outcomes that result from the persistent elevation of blood pressure. Uncontrolled blood pressure remains the most common cause of death, accounting for more than seven million deaths per year worldwide.⁴¹ Hypertension is an independent predisposing factor for heart failure, coronary artery disease, stroke, renal disease and peripheral arterial disease. In this study, we did not

observe a significant difference in the incidence of hypertension-related complications between groups. This result may be attributed to a greater cases-searching effort for the intervention group. Of note, the fatality rate was significantly decreased after the intervention.

Although salt's effect on blood pressure has recently gained interest,⁴² public health interventions to reduce salt intake with the goal of decreasing adverse outcomes have been launched in numerous countries.⁴³ Reduction in salt intake can cause a significant decrease in blood pressure, irrespective of sex and ethnic group.⁴⁴ In the current study, we observed a significant reduction of salt intake among patients receiving family member-based supervision. Our regular training of family supervisors may play an important role. Unlike the effect on salt intake, the intervention has limited long-term effects on patients' active physical exercises and tobacco smoking. Physical inactivity is linked to several chronic diseases, including coronary heart disease, type 2 diabetes, obesity, some cancers and poor mental health.⁴⁵ The mortality risk of being inactive was estimated to be equivalent to an increase of approximately 40 mm Hg in systolic blood pressure or 20 mm Hg in diastolic blood pressure, a number relevant to patients with hypertension.⁴⁶ However, it has been proven that encouraging people to be more active is not easy.⁴⁵ Additional support at the organizational level should be encouraged, and wider contextual factors that impinge on the delivery of and response to the intervention should be considered. Future studies should attempt to adopt an approach that is tailored to individual patients and addresses barriers to adherence. Combinations of strategies include simpler dosage regimens, patient motivation and shared decision making in a partnership between patient and practitioner.¹⁸

There are several limitations to this study. First, we used a cluster randomization method to allocate study subjects. The advantage of using a cluster randomized trial design is that it overcomes practical and contamination problems that can arise when simple random allocation is used.²⁸ However, the limitation of cluster randomization was obvious, and it was difficult to ensure that the basic characteristics of study subjects were comparative. As shown in this study, the baseline treatment adherence and proportion of patients with uncontrolled blood pressure differed between the groups, which could influence the assessment of effects, although we adjusted it using a regression model. Second, the number of clusters in a cluster randomized controlled trial usually should be >10. This study randomly allocated only four villages into two arms. Moreover, the sample size of eligible participants was lower than the prior estimation. Given the number of clusters and the average number of participants in each cluster, the actual power would be smaller than 80%, resulting in the risk of false negative findings. Third, since 2009, China's government has carried out an essential public health service programme, and the management of patients with hypertension is one of the major tasks of this programme. This programme may also affect our study subjects' medication adherence and blood pressure control rate. This can be demonstrated in the control group, as this group also displayed improved treatment adherence and behaviour changes. Fourth, the representativeness of the study subjects should be noted. This study was conducted in one rural area of China, and the generalization of the results to other populations should be done with caution.

In conclusion, the family member-based supervised therapy may have positive effects on patients' adherence to blood monitoring and hypertensive medications. However, its effect was weakened over a long time period. High priority should be given to fundamental and applied research concerning innovations to assist patients in following medication prescriptions for long-term medical disorders.

What is known about the topic?

- Despite progress in the prevention and treatment of elevated blood pressure, hypertension remains a major health challenge worldwide.
- Empirical evidence has suggested that social support from family and friends can help patients take their medicines correctly. Long-term treatment should be monitored, as better adherence can effectively control blood pressure.

What this study adds?

- The family member-based supervised therapy may have positive effects on patients' adherence to blood monitoring and hypertensive medications.
- Family member-based supervision provides assistance to patients with hypertension in an effective and acceptable manner.
- Family support can be a way to promote patients' adherence and better outcomes, but more comprehensive strategies are required.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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Supplementary Information accompanies this paper on the Journal of Human Hypertension website (<http://www.nature.com/jhh>)

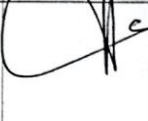




Lampiran 2

**BUKU KEGIATAN BIMBINGAN
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**PRODI DIII KEPERAWATAN
FAKULTAS ILMU KESEHATAN
UNIVERSITAS MUHAMMADIYAH PONOROGO
2020/2021**






NO.	HARI/TANGGAL	REKOMENDASI	TANDA TANGAN
1	Jum'at, 10 Juli 2020	Pengajuan Judul via Skype	
2.	Sabtu, 22 Agustus 2020	Review Bab I Via email	
3	.27. Agustus 2020	Introduction → konsep keluarga sistemik Bab 1 etc.	
4.	28/2020 3	Revisi Bab 2 & 5. Revisi GAP → fokus ke awal kep.	
5	28/2020 9	Parten proposal. All right	
6	24/2021 02	Kontak jurnal - cari jurnal pondok 4P mengubah lingkungan dan perilaku	
7	1/2021 03	- Cari 1 jurnal yang yang spesifik kepada keluarga.	





NO.	HARI/TANGGAL	REKOMENDASI	TANDA TANGAN
8	10/2021 /03	Acc jurnal	
9.	20/2021 /03	Konsul isiada jurnal - Perbaiki penulisan - Tambahkan keari pada kolom kesimpulan - Metode	
10.	6/2021 /5	Basis sta - Pembelun keur sma	
11	19/2021 /5	kevis pembelun konsulka keselund	
12	24/2021 /5	Acc, usum aliter	



**BUKU KEGIATAN BIMBINGAN
KARYA TULIS ILMIAH (KTI)**

Pembimbing : Ririn Nasriati, S.kep Ns, M.kep
Nama Mahasiswa : Endang Prabudi
NIM : 18013058

**PRODI DIII KEPERAWATAN
FAKULTAS ILMU KESEHATAN
UNIVERSITAS MUHAMMADIYAH PONOROGO
2020/2021**

NO.	HARI/TANGGAL	REKOMENDASI	TANDA TANGAN
1.	10 / 2020 07	Pengajaran dan percobaan	
2.	28 / 2020 07	<ul style="list-style-type: none"> - Introduction terlalu panjang - Kronologi, penguasaan sumber objek → met. keperawatan. 	
3.	22 / 2020 05	<ul style="list-style-type: none"> - masalah masalah kep. dalam keluarga - - 	
4.	15 / 2020 09	<ul style="list-style-type: none"> - lanjut bab 2 dan 3 	
5.	21 / 2020 09	<ul style="list-style-type: none"> - Bab 1 : tambahkan uraian/definisi - Bab 2 : tambahkan hub. antar konsep - Bab 3 : metode → menguraikan pendekatan keprawatan - Perhatian penelitian 	

NO.	HARI/TANGGAL	REKOMENDASI	TANDA TANGAN
6.	28 / 2020 / 09	<ul style="list-style-type: none"> - Konsepe keseluruhan - Tambahkan konsep 	
7	29-9-2020	tahap ujian pmp	
8	30-4-021	Pembahasan → perbaikan sesuai sar. > detail terkait Metode pemberian edukasi kes.	
9	17-5-021	Pembahasan → perbaikan sesuai sar. → ⊕ lebih sesuai revu → mana y metode edukasi ??	

NO.	HARI/TANGGAL	REKOMENDASI	TANDA TANGAN
10	25/021 /5	⊕ besi yay mendasm -	
11	2/2021 /6	Rab IV - V perbaiki Semai saran leane berulmha.	
12.	6/2021 /6	Layhgn semua aya + laypin ?	