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PENERAPAN EDUKASI TERSTRUKTUR MENINGKATKAN SELF EFFICACY DAN MENURUNKAN IDWG PASIEN HEMODIALISA DI RSUD INDRAMAYU

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ABSTRAK

Jumlah kasus *chronic kidney disease* yang harus menjalani terapi hemodialisa sejumlah 400 pasien dari 1.000.000 penduduk di Indonesia (Situmorang, 2013). Pemantauan keberhasilan hemodialisa diukur dari *Inter Dialilytic Weight Gain* (IDWG) yang tidak lebih dari 4 % berat kering. Nilai IDWG yang melebihi dari normal menimbulkan gejala edema, sesak nafas, dan rasa tidak nyaman. Salah satu kepatuhan pasien dalam mempertahankan IDWG adalah *self efficacy*. Penelitian ini bertujuan untuk menganalisa pengaruh edukasi terstruktur terhadap *self efficacy* dan IDWG pada pasien hemodialisa. Desain penelitian *quasi experimen*, dengan pendekatan *pretest-posttest with control group*. Pemilihan sampel menggunakan purposive sampling. Jumlah sampel 38 pasien hemodialisa dibagi dua kelompok 22 kelompok intervensi dan 16 kelompok kontrol. Edukasi diberikan dengan gambar dan video dalam media LCD proyektor dan *leaflet*. IDWG diukur dengan observasi berat badan sedangkan *self efficacy* menggunakan kuesioner. Uji statistik menggunakan uji t-dependen dan t-independen. Hasil penelitian menunjukkan pemberian edukasi terstruktur pada kelompok intervensi meningkatkan *self efficaccy* untuk mengontrol intake cairan antar waktu dialysis ($p=0,000$, $\alpha=0,05$), dan menurunkan IDWG ($p=0,04$, $\alpha=0,05$). Sedangkan pada kelompok kontrol penerapan edukasi meningkatkan *self efficacy* ($p=0,03$, $\alpha=0,05$), namun tidak menurunkan IDWG ($p=0,053$, $\alpha=0,05$). Hasil analisis lanjut menggunakan uji t-independen pada kedua kelompok ditemukan tidak ada perbedaan yang bermakna dalam *self efficacy* dan IDWG ($p > 0,05$). Edukasi terstruktur berpengaruh dalam meningkatkan *self efficacy* dan menurunkan IDWG.

Kata kunci : *self efficacy*, IDWG, edukasi terstruktur

ABSTRACT

The number of chronic kidney disease with hemodialysis therapy was 400 patients of 1,000,000 population in Indonesia (Situmorang, 2013). The success hemodialysis was monitored by Inter Dialilytic Weight Gain (IDWG) and the criteria was not more than 4 % of dry weight. An excess of IDWG value would cause the symptoms of edema, shortness of breath, and discomfort. Self efficacy was one of patient compliance in maintaining IDWG. The aim of this study was to analyze the effect of a structured education on self-efficacy and IDWG in hemodialysis patients. The study used quasi experimental design, with pretest-posttest control group approach. The sample was selected by purposive sampling technique. The sample was 38 patients, divided into intervention group (22 patients) and control group (16 patients). The intervention of structured education was use pictures and videos by LCD projector and leaflets. IDWG was measured by weight observation, while self-efficacy by questionnaire. The statistical test used t-dependent and t-independent. The result showed that structured education increased self efficaccy to control fluid intake on inter dialysis time ($p = 0.000$, $\alpha = 0.05$) and decreased IDWG value ($p = 0.04$, $\alpha = 0.05$) in the intervention group. While the intervention increased self efficacy to control fluid intake on inter dialysis time ($p = 0.03$, $\alpha = 0.05$)

and decreased IDWG value ($p=0,053$, $\alpha=0,05$) in the control group. The results of further analysis used an independent t-test, showed that there were not a significant differences in self-efficacy and IDWG ($p> 0,05$) between intervention and control group. The structured education caused an increasing of self-efficacy and a decreasing of IDWG value.

Keyword : self efficacy, IDWG, structured education

PENDAHULUAN

Chronic kidney disease (CKD) adalah suatu sindroma klinis dimana terjadi penurunan fungsi ginjal secara progresif dengan penyebab yang beragam (Black dan Hawk, 2009). Jumlah pasien CKD selalu bertambah dari tahun ke tahun. Diperkirakan sebanyak 11% atau 19,2 juta penduduk Amerika mengalami CKD (Coresh, J., Astor, B.C., Greene, T, et al., 2003 dalam Black dan Hawk, 2009). Sedangkan kasus CKD di Indonesia menurut Perhimpunan Nefrologi Indonesia (Pernefri), sebanyak 25 juta atau 12,5%. Selain itu Pernefri memperkirakan akan terjadi peningkatan pertumbuhan kasus CKD sekitar 10% setiap tahun (Husna, 2010).

Salah satu tahap CKD yaitu derajat 5 (disebut *end-stage renal disease*, ESRD) memerlukan terapi pengganti ginjal berupa dialisis atau transplantasi ginjal (Black & Hawk, 2009; Brunner & Suddarth, 2004; Ignatavicius & Workman, 2010). Menurut data Yayasan Peduli Ginjal (Yadugi), saat ini di Indonesia terdapat 40.000 pasien CKD. Akan tetapi dari jumlah tersebut, hanya sekitar 3.000 pasien yang bisa menikmati pelayanan cuci darah atau hemodialisis. Sisanya, hanya bisa pasrah menjalani hidupnya, karena pada dasarnya pasien hemodialisis tidak bisa sembuh (Smelzer dan Bare, 2002). Sesuai dengan pendapat Suwitra (2006) mengatakan di negara Jepang mampu menekan angka kematian akibat CKD menjadi 10 per 1000 penderita dengan hemodialisa. Hal ini disebabkan pelayanan hemodialisa yang diberikan didukung dengan fasilitas yang memadai dan kedulian tenaga medis dan paramedis serta metode edukasi yang tepat.

Hemodialisis pada pasien CKD dapat mencegah kematian namun tidak menyembuhkan penyakitnya. Oleh karena itu pasien harus menjalani hemodialisis sepanjang hidupnya atau sampai mendapat ginjal baru melalui transplantasi ginjal (Smeltzer dan Bare, 2002). Masalah utama yang terjadi pada pasien yang menjalani hemodialisis adalah penambahan berat badan diantara dua waktu hemodialisis (*Interdialytic weight gain* = IDWG). Hal ini disebabkan karena ginjal tidak mampu melakukan ekskresi cairan, sehingga

penambahan berat badan akan selalu ada. Penambahan IDWG yang berlebihan menimbulkan gejala edema, sesak nafas, dan rasa tidak nyaman. Menurut Hwang, Wang & Chien (2007), Sarkar, Kotanko & Levin (2006) dalam Riyanto (2011) mengatakan bahwa beberapa faktor yang mempengaruhi penambahan berat badan di antara dua waktu dialisis adalah faktor lingkungan, gizi, perilaku, fisiologis, dan psikologis.

Berdasarkan Konsesus Dialisis Pernefri (2003) dalam Syamsiah (2011) memberikan kesepakatan tentang durasi HD dengan frekuensi 2x perminggu selama 4 – 5 jam. Penimbangan berat badan sebelum dan sesudah HD adalah untuk mengetahui *dry weight* pasien. Istilah *dry weight* merupakan kondisi dimana tidak ada bukti klinis oedema, nafas pendek, peningkatan tekanan nadi leher atau hipertensi. Prediktor kesuksesan dalam meningkatkan kualitas hidup pasien yang menjalani HD adalah mampu mempertahankan berat badan interdialisis tidak melebihi 1,5 kg (Lewis, Stabler & Welch, 2000) atau tidak lebih dari 2% dari *dry weight* (Price & Wilson, 2005).

Manajemen pembatasan cairan dan makanan berdampak terhadap penambahan IDWG. Oleh karena itu IDWG dianggap sebagai ukuran kepatuhan pasien yang menjalani terapi hemodialisis. Ketidakmampuan pasien untuk mengikuti diet CKD dipengaruhi oleh keyakinan diri atau *self-efficacy* yang rendah. Pasien memerlukan edukasi dan komunikasi yang efektif sehingga pasien dapat meningkatkan *self-efficacy* untuk mempertahankan IDWG dalam batas normal. Penerapannya melalui edukasi terstruktur yang dilakukan secara terprogram dan sistematis serta didukung dengan metode tertentu yang dibutuhkan pasien. Intervensi edukasi tersebut diharapkan mampu meningkatkan *self efficacy* positif pada pasien HD dalam mempertahankan IDWG, terutama keyakinan dalam membatasi intake cairan.

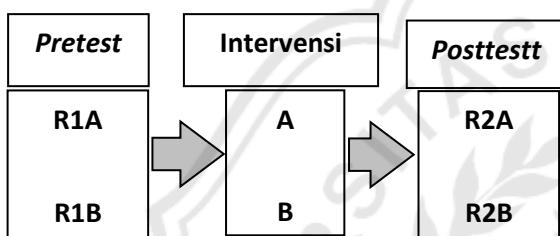
RSUD Indramayu memiliki unit hemodialisa sebanyak 15 unit. Adapun jumlah pasien saat ini yang menjalani hemodialisa sebanyak 63 orang, dengan frekuensi HD 2 kali per minggu. Berdasarkan studi

pendahuluan dari 20 orang yang menjalani hemodialisa, sebanyak 12 orang (60%) ditemukan IDWG di atas 4%. Sedangkan menurut perawat mengatakan bahwa edukasi tentang pengaturan berat badan diantara dua waktu hemodialisa sudah dilakukan, namun belum dilakukan secara terstruktur.

METODOLOGI

Penelitian ini merupakan penelitian kuantitatif dengan teknik *quasi experiment* dengan jenis *pretest-posttest with control group*. Rancangan penelitian secara ringkas dapat dilihat pada skema berikut:

Skema penelitian
(diambil dari: Arikunto, 2010)



Keterangan:

- R1A : Responden kelompok intervensi sebelum intervensi
- R1B : Responden kelompok kontrol sebelum intervensi
- A : Intervensi edukasi terstruktur
- B : Intervensi pemberian leaflet
- R2A : Responden kelompok intervensi setelah intervensi
- R2B : Responden kelompok kontrol setelah intervensi

Sampel pada penelitian ini adalah pasien hemodialisis di Unit Hemodialisis Rumah Sakit Umum Daerah Indramayu sebanyak 62 orang. Teknik pengambilan sampel adalah *purposive sampling* yaitu sampel yang representatif berdasarkan kriteria. Berdasarkan kriteria diperoleh jumlah responden sebanyak 38 orang dengan rincian 22 responden masuk dalam kelompok intervensi, dan 16 responden masuk dalam kelompok kontrol. Penentuan kelompok intervensi dan kontrol dilakukan berdasarkan jadwal shift. Hal ini untuk menghindari adanya kesalahpahaman responden dalam perbedaan perlakuan. Oleh karena itu peneliti menetapkan kelompok intervensi adalah pasien yang menjalani hemodialisa pada shift pagi hari, dan kelompok kontrol adalah pasien yang menjalani hemodialisa pada shift sore. Kelompok intervensi diberikan edukasi

terstruktur, yaitu dengan diberikan pendidikan kesehatan yang terprogram menggunakan media LCD dan laptop dengan durasi 60 menit, disertai tutorial berisi materi tentang konsep IDWG, masalah dalam IDWG, dan cara mempertahankan IDWG. Media menonjolkan gambar dan ilustrasi yang lebih jelas. Selain itu responden juga diberi leaflet yang berisi informasi tentang informasi pengendalian IDWG dan pembatasan cairan. Sedangkan kelompok kontrol hanya diberikan leaflet.

Instrumen yang digunakan untuk pengukuran *Self Efficacy* merupakan pengembangan dari berbagai teori yang dipadukan dengan teori hemodialisa. Instrumen berisi 10 pertanyaan tertutup dengan pilihan jawaban dari 0-10. Rentang ini adalah tingkat keyakinan responden dalam pembatasan cairan, dimana keyakinan tertinggi pada angka 10 kemudian menurun hingga tidak yakin pada angka 0. Alat ukur yang digunakan untuk IDWG adalah timbangan, daftar isian dan lembar observasi mengenai berat badan diantara dialisis.

Analisis data menggunakan univariat dan bivariat. Analisis bivariat digunakan untuk melihat pengaruh edukasi terstruktur terhadap *self-efficacy* dan IDWG. Uji yang digunakan yaitu *paired-sample t-test* dan *independent t-test* (Hastono, 2007).

Pertimbangan etika penelitian digunakan untuk memastikan bahwa responden dilindungi dengan memperhatikan aspek *self determination, privacy and dignity, anonymity and confidentiality, informed consent* dan *protection from discomfort* (Polit & Beck, 2004). Meskipun penelitian ini tidak ada resiko yang merugikan baik terhadap responden, RSUD Indramayu maupun peneliti, tetapi prinsip-prinsip etik tetap ditegakkan.

HASIL

Penelitian telah dilaksanakan pada bulan Agustus 2018 di Ruang Hemodialisa RSUD Indramayu dengan jumlah sampel sebanyak 38 responden, yaitu 22 responden kelompok intervensi dan 16 responden kelompok kontrol.

1. Analisa Univariat

Karakteristik responden yang diteliti baik pada kelompok intervensi maupun kelompok kontrol meliputi umur, jenis kelamin, pendidikan, pekerjaan, dan lama menjalani hemodialisa.

Karakteristik pada kelompok intervensi diketahui rata-rata responden berumur 45,91 tahun dengan standar deviasi 12,67, umur termuda 30 tahun dan umur tertua 65 tahun. Sedangkan berdasarkan lama menjalani hemodialisa diketahui rata-rata sudah menjalani hemodialisa selama 31,41 bulan dengan standar deviasi 19,22. Pasien paling baru menjalani hemodialisa adalah 5 bulan, dan yang paling lama menjalani hemodialisa adalah 72 bulan. Sebanyak 72,7% responden berjenis kelamin laki-laki, 36,4% responden berpendidikan SMP, 27,3% bekerja sebagai IRT, dan 95,5% responden berstatus menikah.

Karakteristik responden pada kelompok kontrol diketahui rata-rata responden berumur 42,32 tahun dengan standar deviasi 11,36, umur termuda 24 tahun dan umur tertua 56 tahun. Sedangkan berdasarkan lama menjalani hemodialisa diketahui rata-rata sudah menjalani hemodialisa selama 23,50 bulan dengan standar deviasi 20,44. Pasien paling baru menjalani hemodialisa adalah 2 bulan, dan yang paling lama menjalani hemodialisa adalah 72 bulan. Sebanyak 56,3% responden berjenis kelamin perempuan, 50,0% responden berpendidikan SMP, 43,8% bekerja sebagai swasta, dan 100% responden berstatus menikah.

Tabel 1. Rata-rata Self Efficacy Kelompok Intervensi Sebelum dan Sesudah Edukasi Terstruktur (n= 22)

| Variabel | Mean | Med | SD |
|--------------------|-------|-------|-------|
| Self Efficacy_pre | 70,14 | 70,50 | 17,73 |
| Self Efficacy_post | 80,14 | 77,50 | 17,51 |

Berdasarkan tabel 1 di atas diketahui rata-rata *self efficacy* pada kelompok intervensi sebelum dilakukan edukasi terstruktur adalah 70,14, dan *self efficacy* sesudah dilakukan edukasi terstruktur adalah 80,14. Maka dapat dilihat ada peningkatan nilai *self efficacy* sebanyak 10 poin.

Tabel 2. Rata-rata Self Efficacy Kelompok Kontrol Sebelum dan Sesudah Edukasi Terstruktur

| Variabel | Mean | Med | SD |
|--------------------|-------|-------|-------|
| Self Efficacy_pre | 67,06 | 71,50 | 20,15 |
| Self Efficacy_post | 74,25 | 77,50 | 21,68 |

Berdasarkan tabel 2 diketahui rata-rata *self efficacy* pada kelompok kontrol sebelum dilakukan edukasi terstruktur adalah 67,06, sedangkan *self efficacy* sesudah dilakukan edukasi terstruktur adalah 74,25. Maka dapat dilihat ada peningkatan nilai *self efficacy* sebanyak 7,19 poin.

Tabel 3. Rata-rata IDWG Kelompok intervensi Sebelum dan Sesudah Edukasi Terstruktur (n= 22)

| Variabel | Mean | Med | SD |
|-----------|------|------|------|
| IDWG_pre | 6,67 | 6,30 | 2,67 |
| IDWG_post | 5,42 | 4,30 | 2,94 |

Berdasarkan tabel 3 di atas diketahui rata-rata IDWG kelompok intervensi sebelum dilakukan edukasi terstruktur adalah 6,67%, dan IDWG sesudah diberikan edukasi terstruktur adalah 5,42 %. Maka dapat dilihat ada penurunan nilai IDWG sebanyak 1,23 persen.

Tabel 4. Rata-rata IDWG Kelompok Kontrol Sebelum dan Sesudah Edukasi Terstruktur (n= 16)

| Variabel | Mean | Med | SD |
|-----------|------|------|------|
| IDWG_pre | 6,07 | 5,80 | 1,54 |
| IDWG_post | 4,55 | 3,90 | 2,72 |

Berdasarkan tabel di atas diketahui rata-rata IDWG kelompok kontrol sebelum dilakukan edukasi terstruktur adalah 6,07%, dan IDWG sesudah diberikan edukasi terstruktur adalah 4,55 %. Maka dapat dilihat ada penurunan nilai IDWG sebanyak 1,52 persen.

2. Analisis Bivariat

Tabel 5. Hasil Uji Statistik Pengaruh Pendidikan Kesehatan Terstruktur Terhadap Self Efficacy pada Kelompok Intervensi (n=22)

| Variabel | Mean | Med | SD | p value |
|--------------------|-------|-------|-------|---------|
| Self Efficacy_pre | 70,14 | 70,50 | 17,73 | 0,00 |
| Self Efficacy_post | 80,14 | 77,50 | 17,51 | |

Hasil uji statistik variabel *self efficacy* pada kelompok intervensi di dapatkan rata-rata nilai *Self efficacccy* sebelum dilakukan pemberian edukasi terstruktur sebesar 70,14 poin, dan setelah dilakukan edukasi terstruktur diperoleh rata-rata nilai *self efficacy* sebesar 80,14 poin. Berdasarkan hasil tersebut terdapat perbedaan poin antara sebelum dan sesudah dilakukan edukasi terstruktur sebesar 10 poin. Hal ini menunjukkan pada kelompok intervensi terjadi peningkatan keyakinan diri untuk mengatur intake cairan antar waktu dialysis setelah dilakukan edukasi terstruktur. Hasil analisis menggunakan *paired t-test* didapatkan *p value* 0,00 sehingga secara statistik membuktikan bahwa pemberian edukasi terstruktur meningkatkan kemampuan yang bermakna dalam keyakinan diri pasien untuk mengontrol intake cairan antar waktu dialisis.

Tabel 6. Hasil Uji Statistik Pengaruh Pendidikan Kesehatan Terstruktur Terhadap IDWG pada Kelompok Intervensi (n= 22)

| Variabel | Mean | Med | SD | p value |
|-----------|------|------|------|------------|
| IDWG_pre | 6,67 | 6,30 | 2,67 | |
| IDWG_post | 5,42 | 4,30 | 2,94 | 0,04 |

Hasil uji statistik variabel IDWG pada kelompok intervensi di dapatkan rata-rata kenaikan IDWG sebelum dilakukan pemberian edukasi terstruktur sebesar 6,67 persen, dan setelah dilakukan edukasi terstruktur diperoleh rata-rata kenaikan IDWG sebesar 5,42 persen. Berdasarkan hasil tersebut terdapat perbedaan kenaikan berat badan antara sebelum dan sesudah dilakukan edukasi terstruktur sebesar 1,23 persen. Hal ini menunjukkan pada kelompok intervensi terjadi penurunan IDWG setelah dilakukan edukasi terstruktur. Hasil analisis menggunakan *paired t-test* didapatkan *p value* 0,04 sehingga secara statistik membuktikan bahwa pemberian edukasi terstruktur menurunkan IDWG yang bermakna pada pasien hemodialisa.

Tabel 7. Hasil Uji Statistik Pengaruh Edukasi Terstruktur Terhadap Self Efficacy pada Kelompok Kontrol (n= 16)

| Variabel | Mean | Med | SD | p value |
|---------------------------|-------|-------|-------|------------|
| <i>Self Efficacy_pre</i> | 67,06 | 71,50 | 20,15 | |
| <i>Self Efficacy_post</i> | 74,25 | 77,50 | 21,68 | 0,03 |

Hasil uji statistik variabel *self efficacccy* pada kelompok kontrol di dapatkan rata-rata nilai *self efficacccy* sebelum dilakukan pemberian edukasi terstruktur sebesar 67,06 poin, dan setelah dilakukan edukasi terstruktur diperoleh rata-rata nilai *self efficacccy* sebesar 74,25 poin. Berdasarkan hasil tersebut terdapat perbedaan poin antara sebelum dan sesudah dilakukan edukasi terstruktur sebesar 7,19 poin. Hal ini menunjukkan pada kelompok kontrol terjadi peningkatan keyakinan diri untuk mengatur intake cairan antar waktu dialisis. Hasil analisis menggunakan *paired t-test* didapatkan *p value* 0,03 sehingga secara statistik membuktikan bahwa pemberian edukasi terstruktur meningkatkan kemampuan yang bermakna dalam keyakinan diri pasien untuk mengontrol intake cairan antar waktu dialisis.

Tabel 8. Hasil Uji Statistik Pengaruh Edukasi Terstruktur Terhadap IDWG pada Kelompok Kontrol

| Variabel | Mean | Med | SD | p value |
|-----------|------|------|------|------------|
| IDWG_pre | 6,07 | 5,80 | 1,54 | |
| IDWG_post | 4,55 | 3,90 | 2,72 | 0,053 |

Hasil uji statistik variabel IDWG pada kelompok kontrol di dapatkan rata-rata kenaikan IDWG sebelum dilakukan pemberian edukasi terstruktur sebesar 6,07 persen, dan setelah dilakukan edukasi terstruktur diperoleh rata-rata kenaikan IDWG sebesar 4,55 persen. Berdasarkan hasil tersebut terdapat perbedaan kenaikan IDWG antara sebelum dan sesudah dilakukan edukasi terstruktur sebesar 1,52 persen. Hal ini menunjukkan pada kelompok kontrol terjadi penurunan IDWG. Namun hasil analisis menggunakan *paired t-test* didapatkan *p value* 0,053 sehingga secara statistik membuktikan bahwa pemberian edukasi

terstruktur tidak menurunkan IDWG pada pasien hemodialisa.

Tabel 9. Hasil Uji Statistik Pengaruh Edukasi Terstruktur Terhadap *Self Efficacy* Pasien HD di Ruang Hemodialisis RSUD Indramayu

| Variabel | Kelompok | n | Mean | Med | SD | p value |
|---------------------------|-----------|----|-------|-------|-------|---------|
| <i>Self Efficacy_post</i> | Perlakuan | 22 | 80,14 | 77,50 | 17,51 | |
| <i>Self Efficacy_post</i> | Kontrol | 16 | 74,25 | 77,50 | 21,68 | 0,36 |

Hasil uji statistik variabel *self efficacy* (SE) pada kelompok intervensi didapatkan rata-rata nilai SE setelah dilakukan pemberian edukasi terstruktur sebesar 80,14 poin, dan pada kelompok kontrol didapatkan rata-rata nilai SE sebesar 74,25 poin. Berdasarkan hasil tersebut terdapat perbedaan poin antara kelompok intervensi dan kelompok kontrol sebesar 5,89 poin. Hal ini menunjukkan keyakinan diri untuk mengatur intake cairan

antar waktu dialisis pada kelompok intervensi lebih tinggi bila dibandingkan dengan kelompok kontrol. Namun hasil analisis menggunakan *impaired t-test* didapatkan *p value* 0,36 sehingga secara statistik membuktikan bahwa tidak ada perbedaan yang bermakna dalam hal keyakinan diri dalam mengontrol intake cairan antara kelompok intervensi dan kelompok kontrol.

Tabel 10. Hasil Uji Statistik Pengaruh Edukasi Terstruktur Terhadap IDWG di Ruang Hemodialisis RSUD Indramayu

| Variabel | Kelompok | n | Mean | Med | SD | p value |
|------------------|-----------|----|------|------|------|---------|
| <i>IDWG_post</i> | Perlakuan | 22 | 5,42 | 4,30 | 2,94 | |
| <i>IDWG_post</i> | Kontrol | 16 | 4,55 | 3,90 | 2,72 | 0,34 |

Hasil uji statistik variabel IDWG pada kelompok intervensi didapatkan rata-rata kenaikan IDWG setelah dilakukan pemberian edukasi terstruktur pada kelompok intervensi sebesar 5,42 persen, dan pada kelompok kontrol didapatkan rata-rata kenaikan IDWG sebesar 4,55 persen. Berdasarkan hasil tersebut terdapat perbedaan antara kelompok intervensi dan kelompok kontrol sebesar 0,87 persen. Hal ini menunjukkan kenaikan IDWG pada kelompok intervensi lebih tinggi bila dibandingkan dengan kelompok kontrol. Hasil analisis menggunakan *impaired t-test* didapatkan *p value* 0,34 sehingga secara statistik membuktikan bahwa tidak ada perbedaan yang bermakna dalam hal IDWG antara kelompok intervensi dan kelompok control

kesehatan yang dapat memfasilitasi pasien gagal ginjal dalam meningkatkan kualitas hidupnya.

Kualitas hidup penderita gagal ginjal kronis tergantung terhadap kepatuhan pasien dalam mempertahankan berat badan diantara dua waktu hemodialisa. Sesuai dengan penelitian yang dilakukan oleh Riyanto (2011) yang mendapatkan hasil bahwa terdapat hubungan yang signifikan antara penambahan berat badan diantara dua waktu hemodialisa dengan kualitas hidup ($p = 0,000$, $\alpha = 0,05$).

IDWG dianggap sebagai ukuran kepatuhan pasien dalam menjalani terapi hemodialisa. Karena IDWG menunjukkan seberapa besar retensi cairan yang terjadi diantara dua waktu hemodialisa. Masalah umum yang banyak dialami oleh pasien hemodialisa adalah ketidakpatuhan terhadap regimen terapeutik. Ketidakpatuhan dalam pembatasan intake cairan merupakan aspek yang sulit dilakukan untuk sebagian besar pasien. Ketidakpatuhan dalam pembatasan cairan tersebut dapat mengakibatkan kelebihan cairan secara kronik yang dapat meningkatkan risiko kematian karena berbagai komplikasi organ yang dialaminya.

PEMBAHASAN

Gagal ginjal kronik merupakan salah satu penyakit kronis yang terus terjadi peningkatan jumlah kasus dalam setiap tahunnya, dimana Penefri (Persatuan Nefrologi Indonesia) memperkirakan akan terjadi peningkatan jumlah kasus sekitar 10 % setiap tahun (Husna, 2010). Oleh karena itu pelayanan hemodialisa menjadi salah satu sarana

Beberapa penelitian menyebutkan faktor-faktor yang mempengaruhi kepatuhan pasien gagal ginjal kronik dalam mempertahankan IDWG yaitu pengetahuan pasien, dukungan sosial, dan *self efficacy*. *Self efficacy* adalah keyakinan seseorang akan keberhasilan dalam melakukan perawatan diri untuk mencapai hasil yang diinginkan (Lev & Owen 1996, Bandura 1997 dalam Tsay 2003). Teori *self efficacy* didasarkan pada harapan seseorang berkaitan dengan rangkaian tindakan tertentu.

Hasil penelitian menunjukkan penerapan edukasi terstruktur pada kelompok intervensi meningkatkan kemampuan yang bermakna dalam hal keyakinan diri pasien untuk mengontrol cairan diantara dua waktu dialisa ($p=0,00$, $\alpha=0,05$). Begitu juga dalam hal mempertahankan IDWG antar waktu dialisa secara statistik membuktikan pemberian edukasi terstruktur menurunkan IDWG ($p=0,04$, $\alpha=0,05$). Sedangkan kelompok kontrol yang diberikan edukasi sesuai dengan kebiasaan di ruangan ditambah dengan pemberian *leaflet* secara statistik meningkatkan keyakinan diri pasien untuk mengontrol cairan diantara dua waktu dialisa ($p=0,03$, $\alpha=0,05$), namun tidak menurunkan IDWG pada pasien hemodialisa ($p=0,053$, $\alpha=0,05$).

Self efficacy adalah dasar dari motivasi manusia, prestasi dan kesejahteraan emosional. Teori *self efficacy* didasarkan pada harapan seseorang berkaitan dengan rangkaian tindakan tertentu. Menurut Bandura (2006) menyebutkan bahwa ada empat proses pembentukan *self efficacy* yaitu proses kognitif, proses motivasional, proses afektif, dan seleksi yang berlangsung sepanjang kehidupan. Proses kognitif akan mempengaruhi bagaimana pola pikir yang akan mendorong atau menghambat perilaku individu. Individu yang memiliki *self efficacy* yang tinggi akan berperilaku sesuai dengan yang diharapkan dan akan memiliki komitmen untuk mempertahankan perilaku tersebut.

Hasil analisa menunjukkan bahwa tidak ada perbedaan yang signifikan antara *self efficacy* kelompok yang diberikan edukasi terstruktur maupun yang hanya diberikan edukasi konvensional berupa *leaflet*. *Self efficacy* kedua kelompok sama-sama mengalami peningkatan dan saat dibandingkan diantara kedua kelompok tersebut, tidak terdapat perbedaan signifikan. Hal yang

mendasari temuan tersebut dapat dikaji dari aktivitas kedua kelompok selama menjalani HD. Kedua kelompok pasien telah sering mendapatkan edukasi secara konvensional dan kedua kelompok secara tidak langsung diberikan stimulus agar dapat meningkatkan keyakinan dirinya dalam mempertahankan IDWG. Sampel dari penelitian ini diambil berdasarkan kriteria telah menjalani HD minimal 1 tahun, tanpa mengontrol faktor lain yang dapat mempengaruhi *self efficacy*. Berdasarkan penelitian Bonsaksen, Lerdal, & Fagermoen (2012), *self efficacy* pasien yang mengalami penyakit kronik dipengaruhi oleh faktor eksternal dan internal diri pasien. Faktor eksternal yang mampu meningkatkan *self efficacy* pasien adalah *support system* yang baik, dalam hal ini keluarga terdekat. Faktor internal yang dapat menurunkan *self efficacy* seorang pasien adalah respon emosional terhadap penyakitnya. Hal tersebut merupakan akumulasi dari kontrol personal, fokus pasien, dan pemahaman akan penyakitnya. Penelitian ini tidak mengontrol pasien yang memiliki persamaan support system dan respon emosi terhadap penyakit ginjal kroniknya dalam menjalani hemodialisa. Fokus dari penelitian ini dibatasi dari segi kognitif akan pemahaman pasien terhadap makanan dan minuman yang dianjurkan serta yang dilarang agar dapat mengontrol IDWG.

SIMPULAN DAN SARAN

Hasil penelitian dapat disimpulkan:

1. Edukasi terstruktur pada kelompok perlakuan dapat meningkatkan secara bermakna *self efficacy* dan IDWG pada pasien hemodialisa di RSUD Indramayu.
2. Tidak ada perbedaan yang bermakna dalam *self efficacy* dan IDWG antara kelompok perlakuan dan kelompok kontrol.

Saran dari hasil penelitian ini adalah:

1. Saran ditujukan untuk perawat ruangan agar dapat meningkatkan edukasi kepada pasien yang menjalani hemodialisa. Edukasi perlu dilakukan dengan memperbanyak metode dan media pembelajaran sehingga pasien akan lebih tertarik untuk mengikutinya. Selain itu perawat juga perlu meningkatkan pengetahuannya terkait penyakit gagal ginjal kronik dan hemodialisa.

2. Saran untuk rumah sakit supaya menyediakan fasilitas untuk pelaksanaan edukasi sehingga perawat pelaksana yang akan memberikan edukasi dapat lebih maksimal lagi.
3. Saran untuk penelitian selanjutnya adalah mencari metode edukasi yang paling efektif untuk meningkatkan kepatuhan pasien dalam membatasi intake cairan, dengan jumlah sampel yang lebih besar lagi

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The effect of using booklets on patients' self-efficacy knowledge and interdialytic weight gain



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ABSTRACT

Introduction: The inability of patients with chronic renal failure to follow a diet is influenced by low self-efficacy. (Inter Dialytic Weight Gain) IDWG is used as a common measure of patient compliance, as it shows fluid retention that occurs between two hemodialysis sessions. This study aims to analyze the effect of providing education using a booklet on self-efficacy, and level of knowledge, and IDWG in hemodialysis patients.

Methods: The research design was a pre-experimental design, with a group comparison design approach. The use of samples using accidental sampling. A sample of 48 respondents was divided into two groups: 25 and 23 respondents in the intervention and control groups respectively. The intervention group was given education using lecture and booklet methods for 45 minutes. The Control group was given education using the lecture method only. IDWG was measured by observing weight between hemodialysis sessions. The measurements of self-efficacy and level of knowledge were undertaken by employing a questionnaire. Wilcoxon test was used to determine the difference between the pre and post mean of the intervention group and the control group. Mann Whitney statistical test was used to determine the mean difference in the intervention and control groups on the variables of self-efficacy, level of knowledge, and IDWG.

Results: Intervention group increased self-efficacy ($p < 0.05$), increased knowledge ($p < 0.05$) and decreased IDWG ($p < 0.05$). Control group increase self-efficacy ($p < 0.05$), increase knowledge ($p < 0.05$), but not the value IDWG ($p > 0.05$).

Conclusion: Education using booklets helps patients in increasing self-confidence, knowledge of CKD patient care including controlling fluid overload.

Keywords: Education, booklet, self-efficacy, Chronic Kidney Failure, Knowledge Level, IDWG.

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INTRODUCTION

Chronic Kidney Disease (CKD) is a global threat to health in general and in particular to developing countries because its hemodialysis therapy is expensive and lifelong. In India, 90% of the patients cannot afford the cost, and the incidence of CKD has doubled in the last 15 years. The disease is generally managed through hemodialysis therapy, which is usually given twice a week in a dialysis center or clinic. The patients and their families need to know about hemodialysis home care management to prevent complications, which will increase their life expectancy and help them lead a near-normal life. Different studies show the importance of proper knowledge about home care management such as diet management, and fluid management. Knowledge related to these requires media. The information

booklet will help hemodialysis patients to care for themselves at home.¹

Based on a study, the health team should encourage hemodialysis patients to take an active part in self-management with their condition, as well as to promote health literacy through increasing their self-efficacy.² Self-efficacy is one aspect of one's knowledge or self-knowledge that influences human life. A person must believe in his abilities to deal with various events he will face.³ It is needed by everyone to face various problems in life. The CKD patients who have to undergo hemodialysis twice a week will desperately need self-efficacy to motivate themselves in coping with life's dramatic changes.

The results of research conducted by Moktan et al proved that 54.1% of respondents have high self-efficacy, and 47.0% of respondents have an average Inter

Dialytic Weight Gain (IDWG) (4% - 6%).⁴ The results of the further analysis revealed that there was a relationship between self-efficacy and IDWG ($p=0.000$). Understanding the function and concept of self-efficacy is important in developing a simple and targeted implementation to support the efforts of CKD patients in managing their disease.⁵

In addition, the patients undergoing hemodialysis should pay attention to controlling fluid intake. Another complication of hemodialysis is a weight gain between hemodialysis sessions, which is commonly referred to as IDWG. Non-adherence in chronic fluid restriction can increase the risk of death due to various organ complications they experience.⁶ Thus, IDWG needs to be controlled to prevent an increase in mortality. It can be tolerated by the body if the gain is not

more than 1.0-1.5 kg.

Another effort that can be made to improve patient compliance in limiting fluid intake is to increase patient knowledge about diet and ongoing therapy.³ Their knowledge greatly influences their behavior in everyday life. In a study conducted by Majer et al at the Dumai City Hospital, half of the respondents had low knowledge with a percentage of 53.8%. This is influenced by the lack of information they received about the correct diet pattern to adhere to while undergoing hemodialysis.⁷

It has been common that the information is given orally according to the patient's needs. Another way of education by using booklet media is expected to help patients in increasing self-efficacy, level of knowledge, and also fluid management. Such a strategy has been applied and has been well-received to increase the patients' knowledge.^{8,9} Therefore, this study aims to analyze the effect of providing education using a booklet on self-efficacy, and level of knowledge, and IDWG in hemodialysis patients.

METHODS

This study was a pre-experimental design with pre-and post-test in two-group design was adopted. Samples of this study were 48 patients on hemodialysis in the hemodialysis room at the Islamic Hospital of Purwokerto. The sampling employed a technique of accidental sampling. Sample criteria were patients who underwent hemodialysis therapy more than 2 times, fully aware and willing to become respondents. Based on these criteria, 48 respondents were selected, who were then grouped into 25 and 23 respondents to be the intervention and control groups respectively.

The determination of the intervention group and control group was carried out based on the room. This was done to avoid any misunderstanding of the respondents in the difference in treatment. Therefore, the researchers determined that the intervention group was patients who occupied the east hemodialysis room and the control group was the patients who occupied the west hemodialysis room. The intervention group was given education using the lecture method and

giving booklets. The material shared is material that focuses on how to maintain IDWG with the diet for chronic kidney failure patients undergoing hemodialysis. Meanwhile, the control group was only given education using the lecture method.

IDWG is calculated by subtracting the weight before the current HD by the weight before the previous HD then dividing the weight before the current HD multiplied by 100%. IDWG can be classified based on the percentage of weight gain with IDWG being said to be mild if the weight gain is <4%, IDWG is moderate if the weight gain is 4-6% and for IDWG if the weight gain is >6%. Measurement of self-efficacy and level of knowledge using a questionnaire. Wilcoxon test was used to determine the difference between the pre and post mean of the intervention group and the control group. Mann Whitney statistical test was used to determine the mean difference in the intervention and control groups on the variables of self-efficacy, level of knowledge, and IDWG. This research has applied ethical principles in research and passed the ethical test with No. KEPK/UMP/45/XII/2019.

RESULTS

This study succeeded in collecting 48 samples, which were divided into 25 samples in group 1 (intervention) and 23 samples in group 2 (control). Based on the age category the most patients are the elderly. It is seen that the youngest age is late adolescence. The oldest age is the elderly. From their gender, most of them are female, and their education is in elementary school. From their job, most of them is a housewife ([Table 1](#)).

Based on [Table 2](#), it can be seen from the results of the Wilcoxon test in the intervention group that the value of self-efficacy, level of knowledge and IDWG obtained p-value < 0.05 (p = 0.000). The results of the analysis show that there is a significant effect on providing education using booklet media to increase self-efficacy, increase knowledge levels, and decrease IDWG in patients with chronic kidney failure. In the control group, the value of self-efficacy and level of knowledge was obtained by a p-value <0.05 (p = 0.000). IDWG value obtained p-value > 0.05 (p = 0.708). The results

of the analysis showed that there was a significant effect on giving lecture method education on increasing self-efficacy, increasing knowledge levels, but it did not affect decreasing IDWG in patients with chronic kidney failure.

Based on [Table 3](#), the comparison of self-efficacy in the intervention group and control group is p-value > 0.05. The comparison of the level of knowledge in the intervention group and control group is p < 0.05. The comparison of IDWG in the intervention group and control group is p < 0.05.

DISCUSSION

In general, there was an effect of education using booklet media on the average value of self-efficacy, level of knowledge, and the average value of IDWG. The following research by Wong et al, says that the factors that influence compliance in regulating fluid intake are education, self-concept, family involvement, and patient knowledge. The difference of knowledge between obedient and non-compliant patients has proved that their knowledge has some effect on their compliance with limiting fluid intake.¹⁰

The results of the analysis showed that there was no significant difference in the effect of providing education using booklets on self-efficacy in the intervention group and the control group. This finding is since both groups had been exposed to information provided by health workers. They both had been previously stimulated to form self-confidence to be able to control fluid intake. Based on research by Anderson et al, the self-efficacy of patients with chronic diseases is influenced by external and internal factors. The former includes a good support system. The internal factor that can reduce a patient's self-efficacy is the emotional response to his/her illness.¹¹

The focus of this study is limited to the patient's understanding to control their diet, recommended and prohibited food and beverage intake to control IDWG through booklets. Self-efficacy is one of the most influential aspects of self-knowledge in everyday human life. This is because self-efficacy also influences individuals in determining the actions to be taken to achieve a goal, including

estimates of the various things that will be faced.⁵ The results showed that self-efficacy is an important mediator between knowledge and self-care. In addition to providing knowledge to chronic disease patients, health professionals must also

offer strategies that can increase self-efficacy to improve self-care behavior in chronic disease patients and implement effective disease management.¹²

The factors having an impact on their knowledge include education, mass media,

socio-culture, experience, and age. One of the therapies in patients with kidney failure is diet, but in reality, the patient fails to record the diet, due to boredom and lack of detailed knowledge about diet.³ The results of the analysis show that there is an effect of providing education using booklets on the level of knowledge in kidney failure patients undergoing hemodialysis. Knowledge is the result of human sensing or the result of a person knowing about the object of knowledge through his five senses (eyes, ears, feeling, and touch). Factors influencing their knowledge include education, mass media, socio-cultural, experience, and age.⁷ Health education is the main priority and is one of the interventions effective nursing care to increase the level of public awareness of the importance of a correct understanding of his health. Appropriate education can improve knowledge, attitudes, and patient skills.¹³ A continuously-provided proper health education can change them to have the expected behavior.¹⁴

A successful indicator in the assessment of the patients with kidney failure is their ability and confidence to care for themselves to survive in their condition, continuing to carry out life activities according to the patient's ability. In addition, the role of the family is also very important in their quality of life. Confidence to care for themselves must be supported by sufficient knowledge of their own needs. The booklet is one of the educational media that is easy to make and can contain all information related to them.¹⁵

Self-efficacy is a process of cognitive change that occurs through environmental and social roles. The patients, then, will perceive new behaviors and it affects the ability to improve future behavior. Good self-efficacy will improve their life quality.¹⁶ The booklet helps nurses in increasing knowledge, which in turn will improve their self-confidence.¹⁵

Communication with patients is very complex in form. Passive educational support, like booklets, can increase self-efficacy. It is very often that the patients are overwhelmed with new information. They fail to understand it, and this will lead them to stress. This reinforces the need for hospitals to provide educational media

Table 1. Characteristics of respondents.

| Variable | Group 1 | | Group 2 | | n | % |
|--------------------|---------|----|---------|------|----|------|
| | n | % | n | % | | |
| Age group | | | | | | |
| Teenager | 0 | 0 | 1 | 4.4 | 1 | 2 |
| Adult | 8 | 32 | 7 | 30.4 | 15 | 31.3 |
| Elderly | 17 | 68 | 15 | 65.2 | 32 | 66.7 |
| Gender | | | | | | |
| Male | 7 | 28 | 9 | 39.1 | 16 | 33.3 |
| Female | 18 | 72 | 14 | 60.9 | 32 | 66.7 |
| Education | | | | | | |
| Elementary School | 7 | 28 | 9 | 39.1 | 16 | 33.3 |
| Junior High School | 8 | 32 | 5 | 21.7 | 13 | 27.1 |
| Senior High School | 7 | 28 | 8 | 34.8 | 15 | 31.3 |
| College/University | 3 | 12 | 1 | 4.3 | 4 | 8.3 |
| Job | | | | | | |
| Private employees | 3 | 12 | 2 | 8.7 | 5 | 10.4 |
| Civil servant | 2 | 8 | 6 | 26.1 | 8 | 16.8 |
| Farmer | 4 | 16 | 1 | 4.3 | 5 | 10.4 |
| Trader | 1 | 4 | 0 | 0 | 1 | 2 |
| Housewife | 15 | 60 | 14 | 60.9 | 29 | 60.4 |

Table 2. Comparison of mean self-efficacy, knowledge level, and IDWG group 1 (intervention) and group 2 (control) before and after education using booklet media.

| Group | n | Variable | Mean | Z | P-value |
|-------|----|---------------|-------|--------|---------|
| 1 | 25 | Self-efficacy | 5,36 | -3,934 | 0,000* |
| | | Knowledge | 3,08 | -4,126 | 0,000* |
| | | IDWG | 1,18 | -3,888 | 0,000* |
| 2 | 23 | Self-efficacy | 0,74 | -3,002 | 0,003* |
| | | Knowledge | 1,26 | -3,097 | 0,002* |
| | | IDWG | -0,26 | -0,374 | 0,708 |

Table 3. Mean difference between the intervention group and the control group is seen from self-efficacy, level of knowledge, and IDWG.

| Variable | Group | Mean | Z | P-value |
|---------------|-------|-------|--------|---------|
| Self-efficacy | 1 | 27,28 | -1,446 | 0,148 |
| | 2 | 21,48 | | |
| Knowledge | 1 | 29,7 | -2,721 | 0,007* |
| | 2 | 18,85 | | |
| IDWG | 1 | 20,28 | -2,178 | 0,029* |
| | 2 | 29,09 | | |

to know and understand patient needs comprehensively so that they can perform self-care and increase self-efficacy.¹⁶

Family support is an important factor in increasing the patient's self-confidence, with support from the family and the environment including the hospital environment where the patient routinely performs dialysis will increase their confidence in taking care of themselves. Family knowledge and support will affect self-confidence and have an impact on self-regulation management including fluid management.¹⁷

The limitation of this study was the researcher that did not control for other factors that could affect the knowledge, self-efficacy and IDWG of the patients, one of which was the length of HD therapy because the two groups had been exposed to daily information provided by nurses so that knowledge of the two groups and the formation of self-confidence very good, but there was a difference in the patient's weight gain in the intervention group, this could happen because by providing education accompanied by the provision of a booklet the patient always remembered and tried very hard to maintain and comply with what was ordered and written in the booklet. In addition, the booklet made very easy to understand accompanied by pictures that made the patient more aware of the message conveyed from the booklet.

CONCLUSION

Based on the results of research, there is an effect of providing education using booklet media to increase self-efficacy, increase knowledge level and decrease IDWG. Booklet media has been shown a good result to increase knowledge level and decrease IDWG in the intervention group, compared to the control group which did not get booklet media. Therefore, each hemodialysis room should provide media booklets to be given not only to the patients but also to their families as a guide for them in providing care for the patients.

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DISCLOSURES

Conflict of Interest

There is no conflict of interest in this study.

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Ethics Approval

This research has passed the ethical test in the ethics team of the Faculty of Health Sciences, Universitas Muhammadiyah Purwokerto with No. KEPK/UMP/45/XII/2019.

Author Contribution

The author team contributed to collaboration with hospitals and data collection, as well as analysis and creation of articles.

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Impact of Patient Education on Interdialytic Weight Gain and Blood Pressure in Patients Undergoing Hemodialysis

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ABSTRACT

Objectives: To assess the impact of patient education on Interdialytic Weight Gain (IDWG) and Blood Pressure (DBP) in patients undergoing hemodialysis (HD). **Materials and Methods:** A Quasi experimental Pre and Post study design was conducted in an outpatient HD unit among 50 patients who were undergoing maintenance HD. The patients were educated by using validated educational material. The data on IDWG, Systolic Blood Pressure (SBP) and Diastolic Blood Pressure (DBP) were collected at baseline, 4th week, 10th week and 16th week. The paired sample t-test was applied to assess the mean change in difference from baseline to 16th week with p value less than 0.05 was considered as statistically significant. **Results:** The mean SBP was significantly reduced from baseline (151.60 ± 19.99 mmHg) to 16th week (144 ± 15.70 mmHg) with p value 0.021 in pre HD patients and also in post HD patients from baseline (157 ± 21.65 mmHg) to 16th week (144.62 ± 16.03 mmHg) with p value 0.001. The mean Pre and Post IDWG was significantly reduced after the patient education from baseline (3.44 ± 1.36 kg) to the end of the study i.e. 16th week (2.76 ± 0.90 kg) with p value 0.001 in the HD session patients. **Conclusion:** The small group education in patients undergoing HD leads to decrease in IDWG, SBP in Pre and Post-HD sessions patients and DBP in Post-HD session patients significantly from baseline to post education but DBP in Post-HD patients were not reduced significantly.

Key words: Hemodialysis, Interdialytic Weight Gain, Blood Pressure, Patient Education.

INTRODUCTION

Chronic kidney disease (CKD) is the major public health problem in the world population. Studies were estimated that the incidence rate of ESRD in India to be 229 per million populations and more than 100000 new patients are undergoing renal replacement therapy (RRT) annually. In India only 10% of end - stage renal disease (ESRD) patients receive any one type of RRT due to scare and unawareness.¹

IDWG is the main problem in patients who are undergoing maintenance HD. IDWG is mainly occurring as a result of excessive intake of salt and water in-between two HD

sessions. It can be seen in 10 - 95 % of HD patients. Excessive fluid and salt intake lead to dyspnea, generalized edema, heart failure (HF), pulmonary edema and ultimately lead to weight gain.² IDWG will vary individually and it is 5% less than body weight usually seen in the range between 2 – 3.5 kg.³ Controlling IDWG is the main problem in patients undergoing maintenance HD. IDWG depend on daily fluid intake and time between HD session and how much urine passes. The UK renal association suggests that the rate fluid removal during HD should be kept in the range of

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10 ml/kg/hour. However, it is important to notice that the fluid you can remove from your body during HD depend on the excess fluid present in your body. Monitoring IDWG continuously and controlling the fluid and salt intake between dialysis sessions by using alternative ways will help to reduce IDWG.⁴

Like IDWG, HTN is both a reason and consequence of CKD. Around 50 to 90% of patients on HD were suffering from HTN and were on HTN drugs.⁵ Controlling blood pressure is a difficult task in patients undergoing HD. It increases the risk of development of left ventricular hypertrophy, HF, stroke and other CVS and neurological complications. BP measurements during HD procedure are important method of volume assessment and safety, because BP will varies individually during HD sessions and in-between HD sessions. Dietary salt restriction will help to manage HTN in HD patients.⁶ It is evident that patients are facing problems during their dialysis session as they do not show compliance with their diet, salt and fluid consumption plans. This can even lead to complications such as increased IDWG and variation in BP. Systematic patient education can enhance patient's knowledge, behavior and awareness.⁷ By providing proper counseling, a clinical pharmacist can attain definite improvement in patient's knowledge regarding the different aspects of drugs, disease, lifestyle changes during dialysis.⁸

MATERIALS AND METHODS

Study design, site and Ethical approval

Quasi-experimental Pre and Post study was conducted in an out-patient HD unit of Nephrology Department of Justice K.S. Hegde Charitable Hospital, Mangaluru for the study duration of eight months (August 2016 to March 2017). Prior to the initiation of the study, ethical approval was obtained from Institutional Ethical Committee (Ref No: INST.EC/EC/66/2016-17), Mangaluru.

Study criteria

The study inclusion criteria are based on patients undergoing HD continuously in the age group between 18-75 years with a written informed concern, patients of either gender, patients who are undergoing minimum two HD sessions per week, and patients who are not receiving official education about fluid consumption during the study. The study exclusion criteria includes patients who have any mental problems such as dementia or delirium, pregnant and lactating women and patients who are not willing to participate in the study.

Development, validation and readability testing of Patient Information Leaflet (PIL)

The content of PIL includes the information on fluid, thirst and salt management. An expert committee consisting of a nephrologist and academic pharmacists validated the content of the PIL. The validated PIL was translated into Kannada and Malayalam language by using a 3-step process of forwarded translation, backward translation and patient testing and it was also tested for Flesch Reading Ease (FRE) and Flesch – Kincaid Grade Level (FKG) readability tests in Microsoft office-word 2010. The Baker Able Leaflet Design (BALD) was used to obtain layout and design of the PIL. Three months' time duration was taken for the development final of PILs.

Sample size calculation

The sample size required for this pre and post study was calculated based on the formula mentioned in the similar study by Mateti UV et al.,⁹

$$n = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 \sigma^2}{d^2} + 2$$

$\sigma = 2$, $Z_{1-\alpha/2}$ is 1.96 (for $\alpha = 5\%$),

$Z_{1-\beta}$ is 0.84 for 80% power and $d = 0.8$

σ is the mean of the two standard deviations

d is the minimum significant difference in the two groups

The minimum sample required for study is 40.

Data collection process

The demographic details such as age, gender, educational status, employment status, domiciliary status, height, weight, BMI, duration of CKD, duration of HD, co-morbid conditions and number of medications per prescription were obtained from the patient's medical records. The IDWG and BP readings were also collected at the different time intervals after obtaining informed consent form from the patients.

Patient education

The patient education was provided to all the eligible patients after the baseline assessment of IDWG and BP. The educational sessions were provided regularly at 4th, 10th and 16th week of HD sessions. During the educational sessions, the patients were educated about the fluid, thirst and salt management along with indication, dose, administration time, and common side effects of medications and motivated for importance of adherence to regular HD sessions and medications. These patients were also provided the validated PIL based on the preferred language.

Assessment of outcomes

For each time point, the average eight preceding readings of IDWG, SBP and DBP were recorded at baseline, 4th week, 10th week and 16th week for each patient.

IDWG was calculated by using the below mentioned formula ⁶

$$\text{IDWG} = \text{Pre hemodialysis weight} - \text{Post hemodialysis weight}$$

Mean arterial pressure (MAP) was also calculated by using below mentioned formula ¹⁰

$$\text{MAP} = ((\text{SBP} - \text{DBP})/3 + \text{DBP})$$

Statistical analysis

Descriptive statistics was used to summarize the demographic characteristics of the patients. Pre and post educational IDWG, BP and MAP of the HD patients were analyzed by using paired student t test with p value less than 0.05 was considered as statistical significant. The mean change in IDWG, BP and MAP of the HD patients at different time points were analyzed by using repeated measures of ANOVA with p value less than 0.05 was considered as statistical significant. The data was analyzed by using Statistical Analysis Package for Social Science (SPSS) version 16.0.

RESULTS

Readability assessment of PIL

The readability was assessed by using FRE and FKG tests and their readability scores were 61.3 and 8.3 respectively.

BALD assessment scores of PILs

The BALD scores of PILs were calculated based on the standard criteria and the scores for English, Kannada and Malayalam leaflets were 24, 25 and 26 respectively.

Baseline data of HD patients

A total number of 50 patients were included in the study based on the inclusion and exclusion criteria. Out of 50 patients, three patients did not complete the full educational sessions and two patients were expired during the study period. At the end of the study, 45 HD patients were completed the full 16 weeks of patient educational sessions.

Out of 50 patients, male patients (n=33) outnumbered the female patients (n=17) and the mean age of the HD patients was 49.82 ± 11.71 years. Most of the patients were unemployed (72%) due to their disease condition and 38% were illiterate in the study. Majority of HD patients were from rural area background (n=34).

According to the Asian classification of BMI, majority of the HD patients had normal or lean BMI (36%). In the present study, most of the HD patients were undergoing 3 HD sessions/week. Most of the HD patients had the history of CKD in the range from 21 to 40 months (42%) and 52% of them were undergoing HD for less than 20 months. The demographic details such as age, gender, employment status, educational status, duration of HD/ week, BMI, history of CKD and vintage of HD in patients are presented in the Table 1. The study shown that, the family history (82%) of CKD was one of the main risk factor for the development of CKD in the study population. It was noticed that 100% of HD patients were suffering from HTN. The risk factors and co-morbidities of HD patients are presented in the Table 2.

Change in pre and post educational IDWG in HD patients

The mean IDWG in the HD patients was significantly reduced after the patient education from baseline (3.44 ± 1.36 kg) to the end of the study i.e. 16th week (2.76 ± 0.90 kg) with p value 0.001. The mean IDWG in the HD patients was significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.001 are presented in the Table 3.

Change in pre and post educational SBP in Pre-HD session patients

The mean SBP in the Pre-HD session patients was significantly reduced after the patient education from baseline (151.60 ± 19.99 mmHg) to the end of the study i.e. 16th week (144.84 ± 15.70 mmHg) with p value 0.021. The mean SBP in the Pre-HD session patients were significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.007 are presented in the Table 3.

Change in pre and post educational SBP in Post-HD session patients

The mean SBP in the Post-HD session patients was significantly reduced after the patient education from baseline (157.05 ± 21.65 mmHg) to the end of the study i.e. 16th week (144.62 ± 16.03 mmHg) with p value 0.001. The mean SBP in the Post-HD session patients was significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.001 are presented in the Table 3.

Change in pre and post educational DBP in Pre-HD session patients

The mean DBP in the Pre-HD session patients was not significantly reduced after the patient education from

Table 1: Demographic details of HD patients

| Demographic details | | Number of patients (n = 50) | Percentage |
|---|-------------------------------|--------------------------------|------------|
| Gender | Male | 33 | 67% |
| | Female | 17 | 33% |
| Age group (Years) | 18 – 29 | 2 | 4% |
| | 30 – 39 | 10 | 20% |
| | 40 – 49 | 11 | 22% |
| | 50 – 59 | 13 | 22% |
| | 60 – 69 | 14 | 28% |
| Employment status | Employed | 14 | 28% |
| | Unemployed | 36 | 72% |
| Educational status | Primary school | 14 | 28% |
| | 10 th standard | 11 | 22% |
| | Pre-University | 5 | 10% |
| | Degree | 1 | 2% |
| | Illiterate | 19 | 38% |
| BMI range (Kg/ m²) | Underweight (<18.5) | 17 | 34% |
| | Normal or lean (18.5-22.9) | 18 | 36% |
| | Over-weight (23-24.9) | 10 | 20% |
| | Obese (> 25) | 5 | 10% |
| History of CKD in HD patients (Months) | >20 | 12 | 24% |
| | 21-40 | 21 | 42% |
| | 41-60 | 10 | 20% |
| | 61-80 | 2 | 4% |
| | 81-100 | 3 | 6% |
| | 101-120 | 2 | 4% |
| Vintage of HD (Months) | >20 | 26 | 52% |
| | 21-40 | 18 | 36% |
| | 41-60 | 4 | 8% |
| | 61-80 | 2 | 4% |
| Domiciliary status | Rural | 34 | 68% |
| | Urban | 16 | 32% |
| Sessions of HD per week | 3 HD/week | 3 | 6% |
| | 2 HD/ week | 47 | 94% |

BMI-Body mass index; HD-Hemodialysis

baseline (86.78 ± 7.85 mmHg) to the end of the study i.e. 16th week (86.45 ± 5.49 mmHg) with p value 1.000. The mean DBP in the Pre-HD session patients was not significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.357 are presented in the Table 3.

Change in pre and post educational DBP in Post-HD session patients

The mean DBP in the Post-HD session patients was significantly reduced after the patient education from baseline (88.42 ± 7.40 mmHg) to the end of the study i.e. 16th week (86.13 ± 6.01 mmHg) with p value 0.019. The mean DBP in the Post-HD session patients was not significantly reduced at different time points from

Table 2: Risk factors and Co-morbidities of HD patients

| Details | | Number of patients (n = 50) | Percentage |
|----------------|-------------------------------|--------------------------------|------------|
| Risk factors | Family history | 41 | 82% |
| | Pre-alcoholic | 3 | 6% |
| | Pre-smoker | 1 | 2% |
| | Pre-alcoholic and smoker | - | - |
| | Obesity | 2 | 4% |
| | Nature of job | 3 | 6% |
| | Type 2 DM | 14 | 28% |
| | Hypertension | 19 | 38% |
| | Crescentic-glomerulonephritis | 1 | 2% |
| | Diabetic nephropathy | 3 | 6% |
| | Acute pancreatitis | 1 | 2% |
| | Unknown | 14 | 28% |
| Co-morbidities | Hypertension | 50 | 100% |
| | HTN retinopathy | 5 | 10% |
| | Type 2 DM | 14 | 28% |
| | Diabetic retinopathy | 4 | 8% |
| | Diabetic nephropathy | 3 | 6% |
| | Diabetic neuropathy | 1 | 2% |
| | IHD | 7 | 14% |
| | Parkinsonism | 1 | 2% |
| | Anemia | 45 | 90% |
| | COPD | 2 | 4% |
| | Endocarditis | 1 | 2% |
| | Hepatitis B | 1 | 2% |
| | Hyperthyroidism | 2 | 4% |
| | GERD | 1 | 2% |
| | UTI | 1 | 2% |

GERD – Gastro esophageal reflux disease, UTI – Urinary tract infection, IHD – Ischemic heart disease

Table 3: Change in pre and post educational outcomes at different time points in HD patients

| Outcome | Baseline (Mean ± SD) | 4 th Week (Mean ± SD) | 10 th Week (Mean ± SD) | 16 th Week (Mean ± SD) | p value |
|-----------------------|-------------------------|-------------------------------------|--------------------------------------|--------------------------------------|---------|
| IDWG (Kg) | 3.44 ± 1.36 | 3.10 ± 1.11 | 3.01 ± 1.02 | 2.76 ± 0.90 | 0.001 |
| SBP in Pre-HD (mmHg) | 151.60 ± 19.99 | 150.28 ± 18.13 | 147.26 ± 17.53 | 144.84 ± 15.70 | 0.007 |
| SBP in Post-HD (mmHg) | 157.05 ± 21.65 | 152.73 ± 20.02 | 149.73 ± 16.04 | 144.62 ± 16.03 | 0.001 |
| DBP in Pre-HD (mmHg) | 86.78 ± 7.85 | 87.08 ± 6.14 | 85.87 ± 5.96 | 86.45 ± 5.49 | 0.357 |
| DBP in Post-HD (mmHg) | 88.42 ± 7.40 | 86.55 ± 6.89 | 86.66 ± 5.32 | 86.13 ± 6.01 | 0.031 |
| MAP in Pre-HD (mmHg) | 108.38 ± 11.60 | 108.84 ± 9.81 | 106.13 ± 9.13 | 105.91 ± 8.35 | 0.070 |
| MAP in Post-HD (mmHg) | 111.34 ± 12.19 | 108.02 ± 11.05 | 107.51 ± 8.57 | 105.28 ± 8.46 | 0.001 |

IDWG- Interdialytic weight gain; SBP- Systolic blood pressure; DBP-Diastolic blood pressure; MAP- Mean arterial pressure

baseline to 4th week, 10th week and 16th week with p value 0.031 are presented in the Table 3.

Change in pre and post educational MAP in Pre-HD session patients

The mean MAP in the Pre-HD session patients was not significantly reduced after the patient education from baseline (108.38 ± 11.60 mmHg) to the end of the study i.e. 16th week (105.91 ± 8.35 mmHg) with p value 0.105. The mean MAP in the Pre-HD session patients was not significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.070 are presented in the Table 3.

Change in pre and post educational MAP in Post-HD session patients

The mean MAP in the Post-HD session patients was significantly reduced after the patient education from baseline (111.34 ± 12.19 mmHg) to the end of the study i.e. 16th week (105.28 ± 8.46 mmHg) with p value 0.003. The mean MAP in the Post-HD session patients was significantly reduced at different time points from baseline to 4th week, 10th week and 16th week with p value 0.001 are presented in the Table 3.

DISCUSSION

In our study, most of the HD patients were in the age group of 60 - 69 years (28%) and the mean age of the study population was 49.82 ± 11.71 years. Our study results are in contrast to the study conducted by Rahman M et al., where the mean age of the HD patients was 59.7 ± 15.8 years.¹⁰ In addition, the results reported by Lopez-Gomez et al., showed that the mean age of the HD patients was 60.6 ± 14.5 years which is contradicted to our study results.⁴ This may be due to the fact that, older population have the higher risk for developing ESRD.

In our study, 38% of the patients were illiterates, 28% had primary school education and higher education. These results were contradicted to the study conducted by Oshvandi K et al., where they showed that most of the patients had high school education (26.2%).⁷ As per the study result of Sharaf AY et al., most of them had bachelor's degree (26.7%).¹¹ These results were not in comparison with the present study results.

The mean BMI of the study population was 20.21 ± 4.1 kg/m². These findings were contradicted to the study carried out by Lopez-Gomez MJ et al., in their study population BMI was 23.8 ± 3.4 kg/m².⁴ In our study, most of the patients are undergoing maintenance HD of 2 times per week (94%). The study results of Lopez-Gomez MJ et al., and Oshvandi K et al., finding were

not comparable to our results where it was showed that the subjects routinely performed 3 HD/ week (100% Lopez-Gomez MJ et al., and 81% in Oshvandi K et al.).^{4,7} This is mainly due the financial problem during patient's treatment period.

In the present study, family history of CKD was found to be the major risk factor for HD patients (82%). This finding was contradicted to the study conducted Lopez-Gomez et al., and Rahman M et al., in their study chronic interstitial nephropathy (26.1%) and diabetes (34%) were the most common co-morbidities observed.^{4,11}

Another important finding in the study was 100% of the HD patients had HTN (100%) as co-morbidity followed by anemia (90%). These results were consistent with the study conducted by Sharaf AY et al., and Santos SFF et al., where most of the HD patients were suffered from HTN as co-morbidity.^{11,12}

The mean IDWG at baseline was 3.44 ± 1.36 kg, at 4th week 3.10 ± 1.11 kg, at 10th week 3.01 ± 1.02 kg and at 16th week 2.76 ± 0.90 kg in the current study. From this, it is evident that IDWG significantly decreased from baseline to 16th week after the patient education (p value 0.001). These findings were in line with the results of the study performed by Oshvandi K et al., in which it was found that the mean IDWG of HD patients was 3.64 ± 0.88 kg before education and was decreased to 1.34 ± 0.61 kg and 1.71 ± 0.72 kg in one week and one month after the education respectively, with p value 0.001.⁷ The present study findings were also coincides with the results of Sharaf AY et al., where it was found that the mean IDWG was significantly reduced after the educational programs. The mean IDWG in the Sharaf AY et al., study was 4.39 ± 0.63 kg before education and was reduced to 3.71 ± 0.78 kg after the education with p < 0.001.¹¹ The study results of Ryu H et al., also comparable with the present study where, IDWG was significantly reduced after educational program before education (22.5%) to after education (7.46 %) with p value 0.001.¹³

In this study, the mean SBP in Pre-HD patients was significantly reduced after the patient education from baseline (151.60 ± 19.99 mmHg) to end of the study i.e. 16th week (144.84 ± 15.70 mmHg) with p value 0.021. Also the mean SBP in Post-HD patients was significantly reduced from baseline (157.05 ± 21.65 mmHg) to the end of the study i.e. 16th week (144.62 ± 16.03 mmHg) with p value 0.001. As per the study of Oshvandi K et al., the mean SBP in HD patients before education was 139.7 ± 16.45 mmHg and significantly reduced to 129 ± 12.16 mmHg (1 week) and 129 ± 11.51 mmHg (1 month) after education with p value 0.001.⁷ Inrig JK

et al., reported that, for every 1% increase in percentage IDWG was associated with 1 mmHg increase in Pre-HD SBP ($p < 0.0001$) and 0.65 mmHg decrease in Post-HD SBP with p value < 0.0001 these findings were contradicted to our study results.¹⁴

The mean DBP in Pre-HD session patients was not significantly reduced after the patient education from baseline (86.78 ± 7.85 mmHg) to the end of the study i.e. 16th week (86.45 ± 5.49 mmHg) with p value 1.000. But the mean DBP in Post-HD session patients was significantly reduced after the patient education from baseline (88.42 ± 7.40 mmHg) to the end of the study i.e. 16th week (86.13 ± 6.01 mmHg) with p value 0.019 in the Post-HD session patients. Whereas, the study result of Oshvandi K *et al.*, the mean DBP of participants was 81.4 ± 6.07 mmHg before education and decreased to 79.7 ± 5.51 mmHg (1 week) and 81.7 ± 5.27 mmHg (1 month) after the education but there is no statistically difference was observed (p value 0.061).⁹

The present study results revealed that after the patient education, there was a significant reduction in mean IDWG and Pre and Post HD SBP and Pre HD DBP but there was no significant reduction in DBP of Post-HD patients. Santos FFS *et al.*, and Ryu H *et al.*, suggested that repeated patient education preventing abnormal IDWG also control BP in HD patients.^{12,13}

In this present study, the FRE and FKG readability test scores of PIL were 61.3 and 8.1 respectively. These results are contradicted to the study conducted by Mateti UV *et al.*, where the FRE score of the PIL was 64.4 and FKG score of the PIL was 7.3.¹⁵ The studies conducted by Adepu R *et al.*, and Roy RT *et al.*, where the FRE test scores were 80 and 69.9 respectively which was better than our FRE score value.^{16,17} The FKG test score was 7.1 in the study conducted by Roy RT *et al.*, which was almost similar to our study results.¹⁷

In our study, the design and layout of leaflet was evaluated by BALD criteria and the scores were 24 for English, 25 for Kannada and 26 for Malayalam leaflets. These results were similar to the study conducted by Mateti UV *et al.*, where the scores were similar to Malayalam (26) and Kannada (26) PILs except for English PIL's (25).⁹ The mean BALD score was 22 in the study conducted by Adepu R *et al.* comparing to these results our BALD scores was better.¹⁶

The study was planned for small group of education; the duration of the study was less to assess the longer-term outcomes and absence of patients in between the educational sessions were the limitations of the study.

CONCLUSION

The significant reduction of IDWG and SBP in Pre and Post-HD session patients, DBP and MAP in Post-HD session patients was observed from baseline to post education with p value less than 0.05. The DBP and MAP in Pre-HD session patients were not significantly reduced from baseline to the end of the study (post education) with p value > 0.05 . From these results, it is evident that, by providing proper patient counseling and education by a clinical pharmacist can attain definite improvement in the patient knowledge regarding drugs, disease and lifestyle changes during dialysis and decrease the IDWG and BP in HD patients. Effective education can improve patient's confidence and motivate them to lead a healthy life.

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CONFLICT OF INTEREST

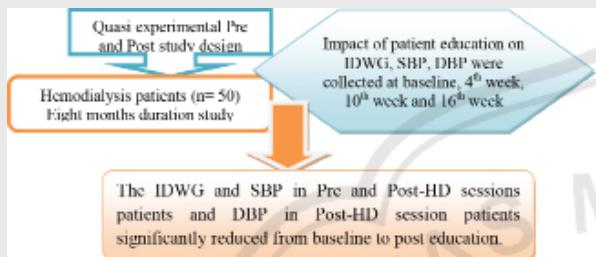
Authors declare no conflict of interest

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PICTORIAL ABSTRACT



SUMMARY

- A quasi experimental Pre and Post study design was conducted in an out-patient HD unit among 50 patients.
- The patients were educated by using validated educational material in the form of local language PILs.
- The content of PIL includes the information on fluid, thirst and salt management.
- The data on IDWG, SBP and DBP were collected at baseline, 4th week, 10th week and 16th week.
- The IDWG and SBP in Pre and Post-HD sessions patients and DBP in Post-HD session patients significantly reduced from baseline to post education.

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