

Hipertensi Effect of Therapy Classic Music Mozart and Murotal Ar Rahman on Decreasing Systolic Blood Pressure in Women Hypertension

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Abstract

The prevalence of hypertension in Indonesia still high. Safe and effective non-pharmacological therapy needed, namely Mozart music and Ar Rahman murotal. The research design was a Quasi Experimental with a Pretest-Posttest Control Group Design approach. The sample consisted of 40. Data were analyzed using t test and unpaired t test. The results : there was a decrease systolic blood pressure before and after treatment and a significant difference in the mean reduction systolic blood pressure between the murotal group and mozart group. Conclusion : listening murotal Ar Rahman more effective to reducing systolic blood pressure hypertensive women than Mozart's music.

Keywords: systolic blood pressure; hypertension women; murotal Al Quran; mozart music

Pengaruh Terapi Musik Klasik Mozart dan Murotal AR Rahman Terhadap Penurunan Tekanan Darah Sistolik Pada Wanita

Abstrak

Prevalensi hipertensi di Indonesia masih tinggi. Terapi non-farmakologis yang aman dan efektif diperlukan untuk membantu penderita yaitu musik Mozart dan murotal Ar Rahman. Desain penelitian adalah Quasi Experimental dengan pendekatan Pretest-Posttest Control Group Design. Sampel berjumlah 40 orang. Data dianalisis menggunakan uji t test dan uji t tidak berpasangan. Hasil penelitian : terdapat penurunan tekanan darah sistolik sebelum dan sesudah perlakuan pada kedua kelompok dan terdapat perbedaan yang bermakna rerata penurunan tekanan darah sistolik antara kelompok murotal dengan kelompok mozart. Kesimpulan : mendengarkan murotal Ar Rahman lebih efektif menurunkan tekanan darah sistolik wanita hipertensi daripada mendengarkan musik Mozart.

Kata kunci: tekanan darah sistolik; wanita hipertensi; murotal Al Quran; musik Mozart

INTRODUCTION

Increasing age is followed by a decrease in physiological function due to the degenerative process (aging) so that non-communicable diseases occur in the elderly. Besides that, degenerative problems reduce the body's resistance so that it is susceptible to infection with infectious diseases and non-communicable diseases. Non-communicable diseases in the elderly include hypertension, stroke, diabetes mellitus and arthritis or rheumatism (Kementerian Kesehatan RI, 2013). Along with age, the incidence of hypertension increases and men have a higher risk of suffering from hypertension early (Situmorang, 2015 in Linda, 2017).

Hypertension is one of the most common diseases found in the practice of primary medicine. Hypertension or high blood pressure is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg at two measurements with an interval of five minutes in a state of sufficient rest / calm. According to NHLBI (National Heart, Lung, and Blood Institute), 1 in 3 patients suffer from hypertension. Hypertension is also a risk factor for myocardial infarction, stroke, acute renal failure and also death and a higher prevalence of hypertension in the elderly group (Muhadi, 2016). Data from the Chinese National Nutrition and Health Survey (NNHS) in 2002 showed that the prevalence of hypertension among Chinese adults was 18.8%, and reportedly increased to 29.6% based on a survey conducted in 2014 (Wu Y et al, 2002 and Wang J et al, 2014 in Liu et al, 2017). Until now, hypertension is still a big challenge in Indonesia. It is a health problem with a high prevalence, which is 25.8% (Riskesmas, 2013).

Increased blood pressure that lasts for a long time (persistent) can cause damage to the kidneys (kidney failure), heart (coronary heart disease) and brain (causing stroke) if not detected early and receive adequate treatment (Situmorang, 2015 in Linda, 2017). Anggraeni (2009) in Linda (2017) states that the factors associated with the incidence of hypertension in patients treated at the Bangkinang Health Center Polyclinic are age, gender, obesity and wrong diet. Men are suspected of having a lifestyle that tends to increase blood pressure than women. However, during menopause, the prevalence of hypertension in women increases. After the age of 65 years, the occurrence of hypertension in women is increased compared to men caused by hormonal factors (Linda, 2017).

Hypertension if not treated immediately can be fatal, therefore it is necessary to manage hypertension, both pharmacologically and non-pharmacologically. In pharmacological therapy some beta-blocker drugs can cause side effects (Puspitarini, 2009 in Herawati, Sari and Murtiningsih, 2018). In addition, if the patient is given more analgesics than the recommended dose, it will cause side effects bad for other organs especially kidney (Rantiyana, Florencia, and Suratun, 2017). Because the use of pharmacological drugs has side effects, it is necessary to conduct non-pharmacological management such as regulating healthy lifestyles and changing lifestyles and creating relaxed conditions that can be done using music therapy (Herawati, Sari and Murtiningsih, 2018). Some examples of music that can be used as therapy are Wolfgang Amadeus Mozart's classical music and mural therapy.

Classical music can have a positive effect. Music can affect the heartbeat

of someone who listens to it. Music with a gentle rhythm heard through the ear will immediately enter the brain and be processed immediately so as to produce a very good effect on one's health. Sound with a medium frequency of 750-3000 Hertz can provide blood pressure control in hypertensive patients. The sound of the rhythmic music that vibrates forms patterns and creates an energy field and reconnection movements in the surrounding space. Energy will be absorbed by the human body and can subtly change breathing, heart rate, blood pressure, muscle tension, skin temperature and pain. Music is a unique stimulus that can affect the physical and psychological response of a person in hearing and is an effective intervention to improve physiological relaxation to reduce pulse, respiration, blood pressure and pain (Triyanto, 2015 in Siauta, Yusuf and Suprajitno, 2017). While one of the letters in the Qur'an that can be used as murottal therapy is Ar Rahman (Salim, 2012). Surat Ar Rahman has many verses that are read repeatedly so that they can distract and function as hypnosis which lowers the patient's brain waves. In this condition, the brain will produce serotonin and endorphins which make a person feel comfortable, calm and happy (Gunawan, 2009).

In recent years, there has been a lot of research on Mozart's music. Mozart's music has also been recommended as relaxation music. Hughes, et al. Conducted a computer analysis of the characteristics of composition and found that Mozart's music has a periodicity above the average (Trappe and Voit, 2016). Research by Trappe and Voit (2016) also shows that Mozart and Strauss's music can reduce blood pressure. However, as far as the knowledge of the researcher, the results of research from several similar studies that have been carried out also vary among different populations. This is because the intervention mechanism is also diverse.

In addition, a previous study by Pratiwi L, Hasneli Y and Ernawaty J (2015) found that the Al-Qur'an benson and murottal relaxation techniques were effective in reducing blood pressure in patients with primary hypertension. Hernawan, Alamsyah D and Sari M (2017) studies also found that there were significant differences in systolic and diastolic blood pressure before and after being given treatment for low impact aerobic exercise and murottal quran therapy. The research conducted by Pratiwi L, Hasneli Y and Ernawaty J (2015), Benson relaxation given to respondents was not clearly stated how, how long and when it was given while in Hernawan, Alamsyah D and Sari M (2017) research respondents age in the elderly category so that lack of enthusiasm for exercising is added to the difficulty of low impact aerobic exercise to be followed by the elderly. Based on this, the researchers assumed the use of Ar Rahman Mozart and Murottal music therapy as appropriate for hypertensive patients in this study because Mozart and Murottal therapy are both easy audio therapy that does not require special training.

This study aims to identify the effects of Mozart's classical music therapy and murottal Ar Rahman against the decrease in systolic blood pressure of hypertension women.

METHODOLOGY

This research uses quasi experiment design with approach of two group pre and post test design. The variables observed were blood pressure performed before and after respondents were given treatment. This research was conducted in Sumampir Village of North Purwokerto Subdistrict on March 12 - May 13, 2018. The subjects were all hypertension women patients in Sumampir District of North Purwokerto in accordance with the inclusion criteria established by the researcher.

The equipment to conduct the intervention used in this study are Omron brand digital tensimeter, mp3 player and head phone. Respondents were divided into two groups. The group that was given Ar Rahman murotal therapy was 19 respondents while 21 people were given Mozart therapy. Each group was given therapy at different times Each group measured blood pressure before and after treatment. Blood pressure is measuring the patient's blood pressure using Omron brand digital tensimeter. Classical music used is Mozart and murotal Al Rahman. Mozart classical music therapy used is classical music created by Wolfgang Amadeus Mozart who has a tempo of 114.79 beats per minute which is played through digital media players and earphones for 15 minutes. Murotal therapy is Ar Rahman with qory Muzammil Hasballah which has been validated at the Mathematics and Natural Sciences Faculty of Jenderal Soedirman University physics laboratory which has a tempo of 95.99 per minute which is played through digital media players and earphones for 15 minutes.

The hypothesis formula of this research is if the value of $p < 0,05$ then hypothesis zero (H_0) rejected and hypothesis one (H_1) received. This shows that there is a significant difference in mean blood pressure reduction before and after treatment in murotal group of Al Quran and mozart music group.

The sampling technique used is consecutive sampling. Roscoe in Sugiono (2012) suggested the number of samples for experimental research using the experimental group and the control group, respectively between 10 - 20. Respondents were divided into two groups. The group that was given Ar Rahman murotal therapy was 19 respondents while 21 people were given Mozart therapy according to the inclusion and exclusion criteria.

The inclusion criteria in this study included: (a) systolic blood pressure >140 mmHg and / or diastolic blood pressure >90 mmHg; (b) ages ≥ 45 years. While the exclusion criteria include: (a) getting another complementer therapy, (b) the patient refuses (c) there are complications of hypertension experienced.

Differences of blood pressure before and after treatment in mozart group and murotal group of Al Quran were analyzed using t test because data were normally distributed despite data transformation process (Sopiyudin, 2012).

This research has earned the certificate of passing ethical test from Medical Faculty of Sebelas Maret University and RSUD Moewardi Surakarta with number 218 / II / HREC / 2018 dated February 20, 2018.

FINDING AND DISCUSSION

Age of Respondents

Characteristics of age of study respondents can be seen in Table 1

Table 1. Characteristics of Respondent Age

Component	Group	
	Mozart	Murotal
Mean	66.6	68.3
Median	61	73
Std.Deviation	1.28	1.2
Min	45	44
Max	90	82
Saphiro Wilk <i>p</i>	0.215	
One Way Anova <i>P</i>	0.661	

Table 1 shows that the mean age of hypertension women in the murotal group Ar Rahman 68.3 years and in the Mozart music group is 66.6 years. Saphiro Wilk test obtained *p* value = 0.215 (>0.05) so that it can be concluded that the age distribution is normal. The age characteristics of the respondents of both groups are homogeneous. This is indicated by the *p* value = 0.661 (> 0.05)

Differences of systolic blood pressure before and after treatment

Table 2. Differences Of Systolic Blood Pressure Before and After Treatment

Variable	n	Median \pm s.d.	<i>p</i>
Mozart Group			
Systolic before	21	1.57 \pm 21.6	0.000
Systolic after	21	1.41 \pm 23.8	
Murotal Group			
Systolic before	19	1.62 \pm 21	0.000
Systolic after	19	1.42 \pm 20.1	

Table 2 shows that all respondents in both groups, both mozart and murotal, experienced a significant decrease in systolic blood pressure. This can be shown by the value of $p < 0.05$ in the *t* test in all groups. Thus, both listening to the Quranic murotal and listening to mozart music can reduce systolic blood pressure.

Difference in Sistole Blood Pressure Decrease Before and After Treatment in Mozart and Murotal Groups

Table 3. Difference in Sistole Blood Pressure Reduction

Variable	N	Median \pm s.d.	<i>p</i>
Decreased Murotal group systole	19	1.87 \pm 11.1	0.013
Decreased Mozart group systole	21	1.18 \pm 7.21	

Table 3 shows that there is a significant difference in systolic blood pressure reduction (*p* value = 0,013).

Characteristics of Respondents

The results showed that both groups had a homogeneous mean age. The mean age of the two groups was in the age range of 68.3 years for the murotal group and 66.6 years for the mozart group. One risk factor for hypertension is age.

The prevalence of hypertension increases dramatically after the age of 50 years, but also the incidence of hypertension in women exceeds that of men in their 60s (Sook Lim et al, 2016). This is consistent with the research of Liu et al (2017) which states that the prevalence of hypertension increases with age. Although age affects blood pressure in hypertensive patients, the age characteristics in both groups are homogeneous. So that the age factor does not result in bias results, because the age distribution in both groups is the same.

This is in accordance with the statement of Widharto (2007) in Pratiwi L, Hasneli Y and Ernawaty J (2015) stating that the incidence of hypertension increases in women after menopause. Women are more at risk of developing hypertension due to a decrease in estrogen which can increase blood pressure (Sugiharto, 2007 in Pratiwi L, Hasneli Y and Ernawaty J, 2015). This result is also consistent with the research of Awaludin, Upoyo, & Purnawan (2013), where the number of female respondents dominating hypertension was 81.2% of 16 respondents. After entering menopause, the prevalence of hypertension in women increases. After the age of 65 years, the occurrence of hypertension in women is increased compared to men caused by hormonal factors (Linda, 2017). In addition, the use of contraceptives, especially those containing estrogen can affect blood pressure. Estrogen affects the renin system of angiotensin aldosterone resulting in vasoconstriction and decreased flow to the kidneys, causing renin release. Renin stimulates the formation of angiotensin I which is then converted to angiotensin II which in turn stimulates aldosterone secretion by the adrenal cortex. This hormone causes sodium and water retention by the renal tubules, causing an increase in intravascular volume that affects blood pressure (Wiknjosastro, 2005 in Haryuti, et al, 2017). This is reinforced also by research that states that the prevalence of hypertension in adults <45 years is lower in women than men, but hypertension is becoming more prevalent and higher in postmenopausal women than men after the age of 55 years (Bushnell, 2014). Other studies also mention blood pressure is generally higher in men than in women regardless of age. Systolic blood pressure overall increases progressively throughout adult life in men and women. During early adulthood means systolic blood pressure is higher for men than for women, but the rate of increase in blood pressure is higher for women than for men. As women age, the prevalence and severity of hypertension also increases, so that after 65 years the percentage of women having high blood pressure is greater than that of men (Pimenta, 2012).

Difference in Systolic Blood Pressure Decreases in Mozart and Murotal Groups

The results of the t test showed p value <0.05 in all groups. Thus, both listening to the Quranic murotal and listening to mozart music can reduce systolic blood pressure. The results of unpaired t test showed a significant difference in systolic blood pressure (p = 0,000).

Blood pressure is the pressure of the blood pumped by the heart against the artery wall. In humans, blood is pumped through two separate circulatory systems in the heart, namely the pulmonary circulation and systemic circulation. The right ventricle of the heart pumps less O₂ blood into the lungs through the pulmonary circulation where CO₂ is released and O₂ enters the blood. Blood that contains O₂ returns to the left side of the heart and is pumped out of the left

ventricle into the aorta through the systemic circulation where O₂ is supplied throughout the body. Blood containing O₂ will pass through the arteries to the body's tissues, while less blood O₂ will pass through the veins from the body's tissues to the heart. Systolic blood pressure occurs when the ventricles contract and bleed into the arteries (Barbeau, 2004 in Amiruddin, Danes and Lintong, 2015).

The decrease in systolic blood pressure in respondents in both groups was triggered by the relaxation effect of listening to murotal or listening to music (Allanson and Fairclough, 2004). When murottal is played, the beautiful murottal harmonization will enter the ear in the form of sound (audio), vibrate the ear drum, shake the fluid in the inner ear and vibrate the hair cells in the cochlea for further through the cochlear nerve to the brain and create imagination of beauty in the brain right and left brain. This will have the effect of feeling and changing feelings. This change in feeling was caused by murattal being able to reach the left region of the cerebri cortex (Purna, 2006 in Hernawan, Alamsyah and Sari, 2017).

There are two things that make listening to the Murotal Al Quran have better results than listening to Mozart music. Tempo murotal Al Quran in this study is lower than the tempo of Mozart music. Murotal Al Quran in the study is a recording of Surat Ar Rahman with qori Muzamil Hasbalah. This Murotal has a tempo of 95.99. While relaxation music in the form of Mozart has a tempo of 114.79. The faster the tempo, the faster the heart rate of a person which results in a decrease in relaxation conditions. Conversely, the lower the tempo, the heart rate will decrease to the normal limit which is accompanied by a more relaxed feeling (Bernardi, 2005).

Humans are both holistic and physical and psychological beings, who influence each other. If something happens in a physical condition it will also affect psychological conditions (Halminton, 1995 in Anggraeni, 2011). This shows that when a person suffers from illness, it is necessary to get treatment not only in terms of psychology but also in terms of the psychological condition of the patient. Anwar (2010) in Pratiwi, Hasneli and Ernawaty (2015) stated that murottal Al-Qur'an will provide a calming effect in the body because of the elements of meditation, autosuggestion and relaxation contained therein. This sense of calm will then provide a positive emotional response that is very influential in bringing positive perception. According to Mustamir (2009) positive perceptions obtained from the Murottal Al-Qur'an's Ar Rahman letter will further stimulate the hypothalamus to release endorphins which are hormones that make a person feel happy. Parasympathetic nerves function to supply the heart and slow down the heart rate. Controlled autonomic nerve stimulation will cause the secretion of epinephrine and norepinephrine will inhibit the formation of angiotensin which can further reduce blood pressure.

The effectiveness of listening to the Murotal Al Quran better than listening to Mozart music is supported by other research (Zulkurnaini et al., 2012). This study shows that the alpha waves produced when listening to the Murotal Al Quran are more than when listening to classical music. People who start light meditation also produce alpha waves. Alpha frequency is also the conscious and subconscious frequency (Mustajib, 2010).

CONCLUSION

Listening to murotal Ar Rahman is more effective in reducing systolic blood pressure in hypertensive women than listening to Mozart's music. Listening murotal surah Ar Rahman can be recommended as a complementary therapy choice and non pharmacology in reducing systolic blood pressure of hypertension patients.

BIBLIOGRAPHY

- Amiruddin M A, Danes V R dan Lintong F. (2015). *Analisa Hasil Pengukuran Tekanan Darah Antara Posisi Duduk dan Posisi Berdiri Pada Mahasiswa Semester VII (Tujuh) TA. 2014/2015 Fakultas Kedokteran Universitas Sam Ratulangi*. Jurnal e-Biomedik (eBm), Volume 3, Nomor 1, Januari-April 2015.
- Anggraeni M D dan Ekowati W. (2011). *Family Role in The Achievement of Post Radical Mastectomy Self Integrity Patients*. International Journal of Public Health Research Special Issue 2011, pp (163-168)
- Awaludin, S., Upoyo, A. S., dan Purnawan, I. (2013). *Pengaruh Light Massage Terhadap Tekanan Darah Penderita Hipertensi Primer di Kabupaten Banyumas*. Jurnal Terpadu Ilmu Kesehatan, 7(1), 01-100.
- Bernardi, L. (2005). Cardiovascular, Cerebrovascular, And Respiratory Changes Induced By Different Types Of Music In Musicians And Non-Musicians: The Importance Of Silence. *Heart*, 92(4), 445–452. <https://doi.org/10.1136/hrt.2005.064600>
- Bushnell C et al. (2014). Guidelines for the Prevention of Stroke in Women A Statement for Healthcare Professionals From the American Heart Association/American Stroke Association. *Journal Stroke* Vol. 45 No. 5 <https://www.ahajournals.org/doi/abs/10.1161/01.str.0000442009.06663.48>
- Forman, Stampfer dan Curhan. (2009). *Diet and Lifestyle Risk Factors Associated With Incident Hypertension in Women*. *JAMA*, July 22/29, 2009—Vol 302, No. 4 <https://jamanetwork.com/journals/jama/fullarticle/184309>
- Gunawan A.W. (2009). *Hypnosis The Art of Subconscious Communication*. Jakarta : Gramedia
- Haryuti, et al. (2017). *Gambaran Tekanan Darah dan Indikator Obesitas Wanita Usia Subur Di Wilayah Kerja Puskesmas Tlogosari Wetan Kota Semarang*. Jurnal Kesehatan Masyarakat (e-Journal) FKM Undip Volume 5, Nomor 2, April 2017 (ISSN: 2356-3346) <http://ejournal-s1.undip.ac.id/index.php/jkm>
- Herawati N, Sari K M dan Murtiningsih A T. (2018). *Pengaruh Terapi Musik Klasik Terhadap Penurunan Tekanan darah Pada Lansia dengan Hipertensi di Kelurahan Simpang Rumbio Wilayah Kerja Puskesmas KTK Kota Solok*. Jurnal Menara Ilmu Vol. XII, No. 3 April 2018 (ISSN 1693-2617, E-ISSN 2528-7613). <http://jurnal.umsb.ac.id/index.php/menarailmu/article/viewFile/714/639>
- Hernawan, Alamsyah D dan Sari M. (2017). *Efektivitas Kombinasi Senam Aerobik Low Impact dan Terapi Murottal Quran Terhadap Perubahan Tekanan Darah Pada Lansia Hipertensi di UPT Panti Sosial Tresna Werdha Mulia Dharma Kabupaten Kubu Raya*. Jumantik (Jurnal Mahasiswa dan

- Penelitian Kesehatan) Poltekkes Kemenkes Pontianak Vol 4, No 1 (2017) ISSN 2442-5478.
- Linda. (2017). *Faktor Risiko Terjadinya Penyakit Hipertensi*. Jurnal Kesehatan Prima Volume : 11, No.2, Agustus 2017, Halaman : 150-157 ISSN Print : 1978 – 1334, ISSN Online : 2460 – 8661
- Liu Xinglan et al. (2017). *Hypertension Prevalence, Awareness, Treatment, Control, And Associated Factors In Southwest China: An Update*. Journal of Hypertension Volume 35 _ Number 3 _ March 2017 https://journals.lww.com/jhypertension/Abstract/2017/03000/Hypertension_prevalence,_awareness,_treatment,.29.aspx
- Kementerian Kesehatan RI. (2013). *Gambaran Kesehatan Lanjut Usia di Indonesia*. Pusat Data dan Informasi Kementerian Kesehatan RI : Jakarta.
- Muhadi. (2016). JNC 8 : *Evidence – Based Guidiline Penanganan Pasien Hipertensi Dewasa*. CDK-236/ vol. 43 no. 1 Tahun 2016. Divisi Kardiologi, Departemen Ilmu Penyakit Dalam Fakultas Kedokteran Universitas Indonesia/RS Cipto Mangunkusumo Jakarta, Indonesia
- Pimenta Eduardo. (2012). *Hypertension in Women*. The Japanese Society of Hypertension Hypertension Research (2012) 35, 148–152. <https://www.nature.com/articles/hr2011190>
- Pratiwi L, Hasneli Y dan Ernawaty J. (2015). *Pengaruh Teknik Relaksasi Benson dan Murottal Al-Qur'an Terhadap Tekanan Darah Pada Penderita Hipertensi Primer*. JOM Vol 2 No 2, Oktober 2015 Program Studi Ilmu Keperawatan Universitas Riau
- Rantiyana, Florencia, and Suratun, 2017. (2017). *Pengaruh Terapi Murottal Al Qur'an Terhadap Nyeri Pada Pasien Luka Bakar*. Jurnal Kebidanan dan Keperawatan Universitas 'Aisyiah Yogyakarta, Vol. 13, No. 2, Desember 2017.
- Salim, S.A. (2012). *Ensiklopedi Pengobatan Islam*. Solo : Pustaka Arafah
- Siauta M, Yusuf A dan Suprajitno. (2017). *Change of Blood Pressure and Headache in People with Hypertension Using Relaxation of Handgrip and Classical Music in Dr. M. Haulussy Hospital Ambon*. Dama International Journal of Researchers (DIJR), ISSN: 2343-6743, ISI Impact Factor: 0.878 Vol 2, Issue 5, May, 2017, Pages 37 – 44
- Sook Lim et all. (2016). *Hypertension And Age At Onset Of Natural Menopause In Korean Postmenopausal Women: Results From The Korea National Health And Nutrition Examination Survey (2008–2013)*. Maturitas Volume 90, August 2016, Pages 17-23 <https://www.sciencedirect.com/science/article/pii/S0378512216300986>
- Sopiyudin, D. (2012). *Statistik Untuk Kedokteran dan Kesehatan: Deskriptif, Bivariat, dan Multivariat, Dilengkapi Aplikasi dengan Menggunakan SPSS (5th ed.)*. Jakarta: Salemba Medika.
- Trappe H J dan Voit G. (2016). *The Cardiovascular Effect of Musical Genres A Randomized Controlled Study on the Effect of Compositions by W. A. Mozart, J. Strauss, and ABBA*. Deutsches Ärzteblatt International | Dtsch Arztebl Int 2016; 113: 347–52 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4906829/>