

## Family Type Relationships and Social *Jetlag* on The Incident of Hypertension

Alya Nurkinasih Putri Handayani<sup>1</sup>, Yusuf Alam Romadhon<sup>2</sup>, Nining Lestari<sup>3</sup>, Anika Candrasari<sup>4</sup>

<sup>1,2,3,4</sup> Faculty of Medicine, Universitas Muhammadiyah Surakarta

Corresponding author: [j510225017@student.ums.ac.id](mailto:j510225017@student.ums.ac.id)

### Abstract

**Introduction:** Hypertension, a disease that is declared a *silent killer*, often triggers death in society, both globally, nationally and in regions such as Sukoharjo Regency. Knowledge of risk factors or causes can make it easier to control or treat hypertension in the community. There is still limited research discussing the relationship between family type and social jetlag and the incidence of hypertension.

**Methods:** Analyze the relationship between family type and social *jet lag* on the incidence of hypertension. Observational analytical research with a *cross sectional* research design using primary data. The research sample consisted of pre-elderly (45-59 years) and elderly (60-69 years). *Cluster random sampling* was used as a technique to take samples with a total of 66 subjects

**Results:** The results of the *Fisher* test showed that there was a relationship between positive social jetlag and the incidence of hypertension with a *P value* < 0.001 with an OR of 72,000. However, there was no relationship between family type and the incidence of hypertension with *p* 0.680.

**Conclusion:** In conclusion, there is a positive relationship between social jetlag and the incidence of hypertension, but there is no significant relationship between family type and the incidence of hypertension.

**Keywords:** *Family type, social jetlag, hypertension*

### Introduction Section

Hypertension is currently widely found in society and can cause more critical complications, namely cardiovascular and result in premature and sudden death (Amisi *et al.*, 2018). Hypertension if pressure blood has exceeds the normal limits, namely systolic blood has a pressure of 140 mmHg or more and diastolic blood has a pressure value of 90 mmHg or more with 2 measurements with a gap of 2 minutes. Symptom on hypertension that is not can direct found make hypertension This often found simultaneously with appearance other diseases or can found moment patient hypertension No on purpose do checking health so often called *silent killer* (Aprillia, 2020). Globally, based on WHO 2019, hypertension has a prevalence of 22% worldwide (Musa, 2022). In Indonesia, the number of cases of hypertension is 63,309,620 people (Purqoti, 2022). Research by the Indonesian Ministry of Health (2019) found that the prevalence of hypertension aged >18 years was 34.11%. According to Riskesdas (2018), Central Java Province had a total prevalence of 37.57% or 63,191 people. The Sukoharjo Regency area has an incidence of hypertension of 1,667 people. Distribution hypertension there is primary hypertension or hypertension that is not is known the trigger as much not enough over 90% and hypertension that has is known the trigger as much as 10%. Gender has an influence on hypertension and is more likely in women due to experiencing menopause because of a The decrease in the amount of the hormone estrogen causes a decrease in HDL, which plays a role in regulating blood vessel health. In old age, there is a high prevalence of hypertension because the loss of flexibility of the large arteries means that blood is forced to pass through the blood vessels, which can result in hypertension (Falaha, 2019).

Factor possible risks changed Wrong the only one is emotion or stress, alcohol consumption or salt And pattern live. One pattern life is Poor sleep quality and sleep duration are related to hypertension or increased blood pressure (Alfi & Yuliwar, 2018). Bad sleep can cause stress, depression, anxiety and easy concentration (Budyawati *et al.*, 2019). Pressure blood go on because the presence of pressure renin blood increase, angiotensinogen (Ang) produced by the liver

is hydrolyzed to angiotensin I (Ang I), and will increase the secretion of epinephrine and norepinephrine. Under the action of angiotensin converting enzymes (ACEs) produced by the lungs, Ang I is converted into angiotensin II (Ang II). Increased ADH causes less urine to be excreted from the body. The volume of extracellular fluid immediately increases due to the withdrawal of intracellular fluid, so the blood volume increases which can result in hypertension. Aldosterone is a regulator of sodium reabsorption or reabsorption and potassium secretion or excretion in the renal tubules. An increase in extracellular volume will result in increased blood volume and can result in hypertension (Marhabatsar & Sijid, 2021).

## Materials and Method

**Research design** This is type study observational analytic use design *cross sectional* variable bound and variables free researched in one time certain. Sampling technique with *cluster random sampling*. The target population is the pre-elderly age group to the elderly who take part in elderly posyandu activities, and the reachable population of posyandu participants elderly in the Gatak Community Health Center working area. The inclusion criteria used were pre- the elderly and the elderly who are in the work area the Gatak Health Center, and pre-elderly and posyandu participants elderly Which willing follow procedure study until finished. Temporary, For criteria the exclusion is workers with night shifts & intensive medical care for 3 months. In determine big sample, use help application *Openepi* so that obtained total amount sample Which needed is 66 subject.

First which done is measurement pressure blood as much 2x use *sphygmamometer*. Respondent will carry out measurements his blood as much Measure 2x with a break of 2 minutes (Aprillia, 2020). Respondent will guided in charging questionnaire and questionnaire. Charging questionnaire For type family respondents requested For fill in questionnaire containing identity And Who has lived in the same house in the last 3 months and what is their relationship with the head of the family? Questionnaire social *jetlag* will filled in by respondents regarding what time they wake up and sleep on weekdays and holidays. What time usually respondents Sleep And get up on day Work or on day there is activity and what time usually respondents Sleep And get up on day holiday or No exists pressure or coercion For do activity From the questionnaire you can make it easier in obtaining data about average hours awake, sleep, both on, or day holiday. Evaluation seen from There is or whether or not *there is jetlag* social happening \_ on respondent, if there is difference on point middle of bedtime day saliva reduced point middle day work named with *jetlag* social positive (Romadhon, 2019).

## Result

Table 1 Characteristics according to pressure blood

Morr no	Blood pressure	Frequency	Percentage
1.	NonHypertension	16	24.2%
2.	Hypertension	50	75.8%
	Amount	66	100%

The highest result was with a percentage of 75.8% or a total of 50 respondents experiencing hypertension while 16 respondents did not have hypertension (24.2%).

Table 2 Characteristics according to type family

Morr no	Family type	Frequency	Percentage
1.	Nuclear family	4	6.1%
2.	Non- nuclear family	62	93.9%
	Amount	66	100%

The highest results were for respondents with a non-nuclear family (*extended family*) as many as 62 respondents (93.9%) while respondents with a nuclear family (*nuclear family*) were 4 respondents (6.1%).

Table 3 Characteristics according to social jetlag

Number	Social jetlag	Frequency	Percentage
1.	Jetlag social	50	75.8 %
2.	No social jetlag	16	24.2 %
	That's the number	66	100 %

The results obtained were that there was a time difference or respondents who experienced positive jetlag, namely with a percentage of 75.8% or a total of 50 respondents and 16 respondents (24.2%) did not experience a difference.

Table 4 Analysis bivariate

Variable	Attribute	Pressure blood				P value	OR value
		No Hypertension		Hypertension			
		N	%	N	%		
Type family	Core ( <i>nuclear family</i> )	1	1.5	3	4.6	0.680	0.796
	Non core ( <i>extended family</i> )	15	22.7	47	71.2		
Social jetlag	Positive	3	4.5	47	71.3	0.001	72,000
	Negative	13	19.7	3	4.5		

Test with *chi-square* 47 respondents who had hypertension had positive social jetlag while 3 respondents had hypertension with negative social jetlag. There were 3 non-hypertensive respondents with positive social jetlag while 13 non-hypertensive respondents had negative social jetlag. Analysis use *fisher*, namely  $P < 0.001$  or meaning that significant results were obtained. Apart from that, an OR of 72,000 was also obtained, it can be stated that social jetlag has a 72-fold potential for causing hypertension. Thus, it was stated that there was a significant relationship between hypertension and social jetlag at the Gatak Sukoharjo Community Health Center. There were 3 respondents with hypertension who had support from a nuclear family type, while 47 respondents with hypertension received support from a non-nuclear family type. Respondents without hypertension had nuclear family support of 1 respondent, while respondents without hypertension had non-nuclear family support of 15 respondents. A analysis uses *fisher*, namely a p value of 0.680 or meaning that the results were not significant between hypertension and family type at the Gatak Sukoharjo Community Health Center.

## Discussion

Research were that there were 50 respondents with hypertension, and 16 respondents with blood pressure that was not high. This is in line with the theory that older people have a high prevalence of hypertension because the flexibility of large arteries disappears and they become stiff, thus blood is forced to pass through narrower blood vessels than usual and triggers blood pressure to rise (Adam, 2019). The research results showed that there was a difference between 50 respondents with positive social jetlag and 16 respondents who did not have a difference or with negative social jetlag. The results of this research are in line with the behavioral picture that most people will sacrifice their internal circadian rhythm to meet the demands of social norms in order to be ready at work/school in the morning at a predetermined time (Romadhon, 2019). A total of 4 respondents have nuclear family support and 62 respondents have non-nuclear family support (*extended family*). In line with previous research which describes family structure in the region Bali is generally an *extended family*.

*structure*, the role of the mother-in-law is relatively more dominant, which is related to the relationship between the in-laws and other extended families. (Dewi & Marheni, 2017).

Study family type to pressure blood showed that there were 3 respondents with hypertension and *nuclear* family support, while there were 47 respondents with hypertension and *extended family* support. 1 respondent did not have hypertension and received nuclear family support, while 15 respondents did not have hypertension and received support from a non-nuclear family (*extended family*). Results use *Fisher's test* is  $P = 0.680$ . This means that between hypertension and family type the results were not significant. Support and attention from family can quality although stay in family large (*extended family*) (Hidayah and Rahmanindar, 2018). Family structure in the area Bali is generally an *extended family structure*, the role of the mother-in-law is relatively more dominant, which is related to the relationship between the in-laws and other extended families. (Dewi & Marheni, 2017). There is no significant relationship between structural type of family in supporting hypertensive patients in helping them get a better quality of life.

Study The results obtained from social *jetlag* on blood pressure were 47 respondents with hypertension with positive social *jetlag* and 3 hypertensive respondents with negative social *jetlag*. There were 3 non-hypertensive respondents with positive social *jetlag* and 13 non-hypertensive respondents with negative social *jetlag*. Significance obtained from Fisher's test namely  $P < 0.001$ . This means between hypertension and social *jetlag* there are significant results. The research results are in line with previous research that activity in the sympathetic nerves will increase with short sleep duration or poor quality, which will trigger stress and result in an increase in blood pressure (Alfi & Yuliwar, 2018). This research also found that OR 72,000 can be said to be social *jetlag* or not bad sleep duration, 72 times more likely to cause hypertension.

## Conclusion

Hypertension is often found in society and often causes more severe complications, namely cardiovascular and early and sudden death. Hypertension is when blood pressure has exceeded the normal limits, namely systolic blood has a pressure of 140 mmHg or more and diastolic blood has a pressure value of 90 mmHg or more with 2 measurements with a gap of 2 minutes. Symptoms of hypertension that cannot be immediately discovered make this hypertension often found together with the emergence of other diseases, often called the silent killer. The family is the smallest part of society consisting of the head of the family and other members who live under one roof and each member is interdependent with other members and has the basis of marriage, blood relationship, or adoption. Division of family types, including the nuclear family, whose members include father, mother and children. Non-nuclear family (*extended family*) consists of approximately three generations who live under the same roof, for example nephews, aunts, uncles, grandfathers or grandmothers. There are three types of time management in human life, namely the internal clock which is the time that arises from within the body, the sundial which provides information about day and night and the social clock which is the demand for when a person should sleep or rest. These three clocks are well synchronized, making them ideal time for humans. activity in the sympathetic nerves will increase with short sleep duration or poor quality, which will trigger stress and result in an increase in blood pressure. Nuclear family support is also very necessary to help with stress. The nuclear family knows more about the activities the patient does every day.

## Acknowledgement

The authors thank the Dean of the Faculty of medicine, University Muhammadiyah of Surakarta and head of the Community Health Center.

## References

- Adam, L. (2019). Determinan Hipertensi Pada Lanjut Usia. *Jambura Health and Sport Journal*, 1(2), 82–89. <https://doi.org/10.37311/jhsj.v1i2.2558>
- Alfi, W. N., & Yuliwar, R. (2018). The Relationship between Sleep Quality and Blood Pressure in Patients with Hypertension. *Jurnal Berkala Epidemiologi*, 6(1), 18. <https://doi.org/10.20473/jbe.v6i12018.18-26>
- Amisi, W. G., Nelwan, J. E., & Kolibu, F. K. (2018). Hubungan antara Hipertensi dengan Kejadian Penyakit Jantung Koroner pada Pasien yang Berobat di Rumah Sakit Umum Pusat Prof. Dr. R. D. Kandou Manado. *Kesmas*, 7(4), 1–7.

- Aprillia, Y. (2020). Gaya Hidup dan Pola Makan Terhadap Kejadian Hipertensi. *Jurnal Ilmiah Kesehatan Sandi Husada*, 12(2), 1044–1050. <https://doi.org/10.35816/jiskh.v12i2.459>
- Budyawati, N. P. L. W., Utami, D. K. I., & Widyadharna, I. P. E. (2019). Proposi dan Karakteristik Kualitas Tidur Buruk pada Guru-Guru Sekolah Menengah Atas Negeri di Denpasar. *E-Jurnal Medika*, 8(3), 1–7.
- Dewi, G. S. M., & Marheni, A. (2017). Perbedaan Subjective Well Being Pada Ibu Ditinjau Dari Struktur Keluarga Di Kota Denpasar. *Jurnal Psikologi Udayana*, 4(1), 102–109. <https://doi.org/10.24843/jpu.2017.v04.i01.p11>
- Falah, M. (2019). Hubungan Jenis Kelamin Dengan Angka Kejadian Hipertensi Pada Masyarakat Di Kelurahan Tamansari Kota Tasikmalaya. *Jurnal Keperawatan & Kebidanan STIKes Mitra Kencana Tasikmalaya*, 3(1), 88.
- Japarianto, E. (2017). Analisa Pengaruh Family Types, Family Stages, Dan Household Conflict Terhadap Pengambilan Keputusan Pembelian Mobil Keluarga. *Jurnal Manajemen Pemasaran*, 11(1), 32–39. <https://doi.org/10.9744/pemasaran.11.1.32-40>
- Kemendes RI. (2019). *Hipertensi Penyakit Paling Banyak Diidap Masyarakat*. <https://www.kemkes.go.id/article/view/19051700002/hipertensi-penyakit-paling-banyak-diidap-masyarakat.html>
- Marhabatsar, N. S., & Sijid, S. A. (2021). Review: Penyakit Hipertensi Pada Sistem Kardiovaskular. *Journal UIN Alauddin*, November, 75. <http://journal.uin-alauddin.ac.id/index.php/psb>
- Musa, E. C. (2022). Status Gizi Penderita Hipertensi di Wilayah Kerja Puskesmas Kinilow Tomohon. *Sam Ratulangi Journal of Public Health*, 2(2), 060. <https://doi.org/10.35801/srjoph.v2i2.38641>
- Purqoti, D. N. S. (2022). Tingkatkan Kualitas Hidup Penyandang Hipertensi Melalui Promosi Kesehatan. *Departmen Keperawatan, Stikes Yarsi Mataram*, 3(1), 5–9.
- Riskesdas. (2018). Laporan Provinsi Jawa Tengah Riskesdas 2018. In *Kementerian Kesehatan RI*.
- Romadhon. (2019a). *Pengantar Kajian Ilmu Kedokteran pada Ibadah Sholat*. [https://www.researchgate.net/publication/337649666\\_ebook-Pengantar\\_Kajian\\_Ilmu\\_Kedokteran\\_pada\\_Ibadah\\_Sholat-fix](https://www.researchgate.net/publication/337649666_ebook-Pengantar_Kajian_Ilmu_Kedokteran_pada_Ibadah_Sholat-fix)
- Romadhon, Y. A. (2019b). *CHRONOTYPE STUDY IN MOSLEM COMMUNITY IN INDONESIA Family as determinant factor for health View project*. May. <https://www.researchgate.net/publication/333005093>
- Sintowati, R., & Romadhon2, Y. A. (2021). *Analisis Faktor Individu , Keluarga dan Lingkungan sebagai Faktor Risiko Berat Badan Lebih / Obesitas pada Penduduk Indonesia ( Sebuah Studi Observasional )*. 580–589.
- Wiratri, A. (2018). *Menilik Ulang Arti Keluarga Pada Masyarakat Indonesia ( Revisiting the Concept of Family in Indonesian Society )*. 13(1), 15–26.