ISSN: 0975-854

Journal of Global Pharma Technology

Journal of Global Pharma Technology

It is our immense pleasure to launch **Journal of Global Pharma Technology(JGPT)** from December 2009, to cater to the publication needs of teachers, scientists, scholars and students. We thank all the forces with us, in the form of eminent advisory board and editorial board for all their cooperation and enthusiastic involvement in this blooming endeavor.

Journal publishes peer-reviewed original research papers, case reports, systematic reviews. The journal allows free access to its contents, which is likely to attract more readers and citations to articles published in **JGPT**.

JGPT publishes original research work that contributes significantly to the scientific knowledge in pharmacy and pharmaceutical sciences- Pharmaceutics, Novel Drug Delivery, Pharmaceutical Technology, Cosmeticology, Biopharmaceutics and Pharmacokinetics, Pharmacognosy, Natural Product Research, Medicinal Chemistry, Computational Chemistry and Molecular Drug Design, Pharmaceutical Analysis, Pharmacology, Pharmacy Practice, Clinical and Hospital Pharmacy, Cell Biology, Genomics and Proteomics, Pharmacogenomics, Bioinformatics, Biotechnology and Applied Computer Technology.
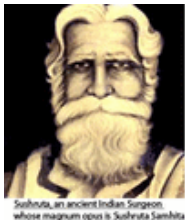
For this purpose we would like to ask you to contribute your excellent papers in pharmaceutical sciences. Currently, there are several papers under review consideration for the upcoming issues. I certainly hope that more ground will be covered in the future issues.

I hope you find this journal informative and useful. It is a new initiative. Your comments will help us improve the quality and content of the journal.

Current Issue (/index.php/JGPT/issue/current)
Past Issues (/index.php/jgpt/issue/archive)
Articles in Press (/index.php/JGPT/issue/archive)

JGPT Dedicated In Honour Of Great Scientist
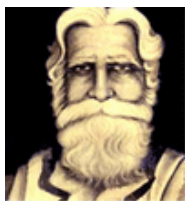
Sushruta, an ancient Indian Surgeon whose magnum opus is Sushruta Samhita

User

Username [ ]

Password [ ]

☐ Remember me

[Login]

Journal Content

Search

[ ]

Search Scope
[All ▼]

[Search]

Browse

» By Issue (http://www.jgpt.co.in/index.ph

» By Author (http://www.jgpt.co.in/index.ph

» By Title (http://www.jgpt.co.in/index.ph

JGPT Visitors

You are visitor no.

`2 2 6 4 3 4`

(https://www.freecounterstat.c
c=93cc3cc4126e4e1f5f38a1d06

Journal of Global Pharma Technology

ISSN: 0975-854

Editorial Team

Prof. (Dr.) Chakka Gopinath

Professor and Principal

Annamacharys College of Pharmacy

Thallapaka Panchayath,New Boyanapalli, Rajampet, Kadapa, A.P., India

Prof. (Dr.) A. Pandurangan

Dean/ Principal

Glocal School of Pharmacy, Glocal University, Saharanpur, U.P., India

Dr. Varaprasad Bobbarala

Chief Scientist,

Translational Research Institute of Molecular Sciences (TRIMS)

Dr. Bhaskar C Behera

Scientist,

Agharkar Research Institute (Dept. of Secience &Technology, Govt. Of India), Plant Science Division, Pune, India

Dr. Nisha Tanwar

Dept. of Computer Science, Faculty of Science

Bhupal Nobles University,Udaipur, Rajasthan (India)

Prof. (Dr.)   Ayad F. Alkaim

Professor

Department   of Chemistry, Babylon University, Iraq

SJR

Scimago Journal & Country Rank

Enter Journal Title, ISSN or Publisher Name

Home   Journal Rankings   Country Rankings   Viz Tools   Help   About Us

Journal of Global Pharma Technology

Country	India - 🏛 SIR Ranking of India
Subject Area and Category	Pharmacology, Toxicology and Pharmaceutics Pharmaceutical Science
Publisher	Journal of Global Pharma Technology
Publication type	Journals
ISSN	09758542
Coverage	2010-ongoing
Scope	Journal of Global Pharma Technology (JGPT) is peer reviewed, Monthly open access Journal. JGPT publishes original research work that contributes significantly to further the scientific knowledge in pharmacy and pharmaceutical sciences (Pharmaceutical Technology, Pharmacognosy, Natural Product Research, Pharmaceutics, Novel Drug Delivery, Biopharmaceutics, Pharmacokinetics, Pharmaceutical/Medicinal Chemistry, Computational Chemistry and Molecular Drug Design, Pharmacology, Pharmaceutical Analysis, Pharmacy Practice, Clinical and Hospital Pharmacy, Cell Biology, Genomics and Proteomics, Pharmacogenomics, Bioinformatics, Pharmacoeconomics). Research outcomes from medical sciences/case study and biotechnology of pharmaceutical interest are also considered. JGPT publishes original research work either as an Original Article or as a Short Communication. Review articles on current topic under mentioned scopes are also considered for publication.

10

H Index

⑦ Homepage

How to publish in this journal

Contact

💬 Join the conversation about this journal

Quartiles   ＋

Pharmaceutical Science

2011   2012   2013   2014   2015   2016   2017   2018

SJR

0.2
0.16
0.12
0.08

2011 2012 2013 2014 2015 2016 2017 2018

Citations per document

0.6

0.4

0.2

0

2010   2012   2014   2016   2018

- ○ Cites / Doc. (4 years)
- ○ Cites / Doc. (3 years)
- ○ Cites / Doc. (2 years)

Total Cites   Self-Cites

120

60

0

2010   2012   2014   2016   2018

External Cites per Doc   Cites per Doc

0.5

0.25

0

2010   2012   2014   2016   2018

% International Collaboration

5

2.5

0

2010   2012   2014   2016   2018

Citable documents   Non-citable documents

400

200

0

2010   2012   2014   2016   2018

Cited documents   Uncited documents

400

200

0

2010   2012   2014   2016   2018

Journal of Global Pharma Technology

Q3   Pharmaceutical Science

best quartile

SJR 2018
0.18

powered by scimagojr.com
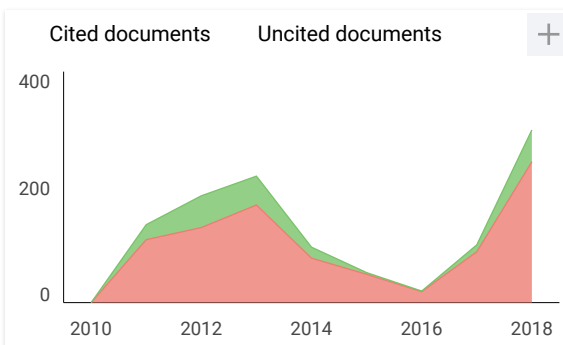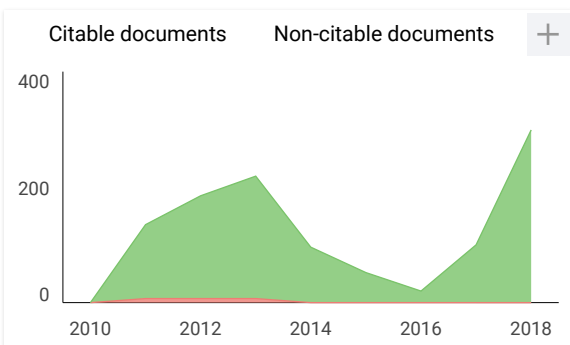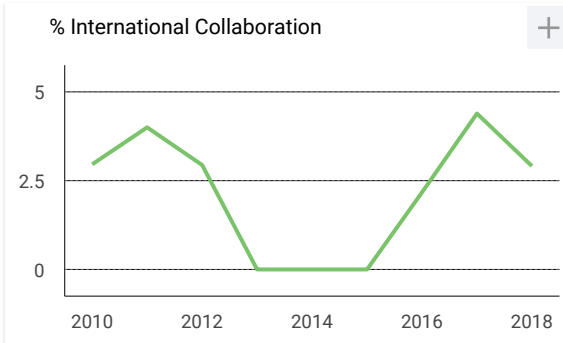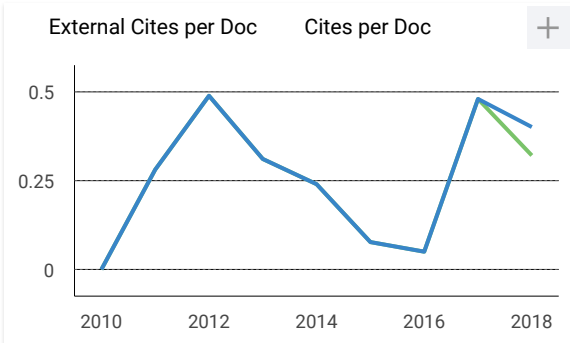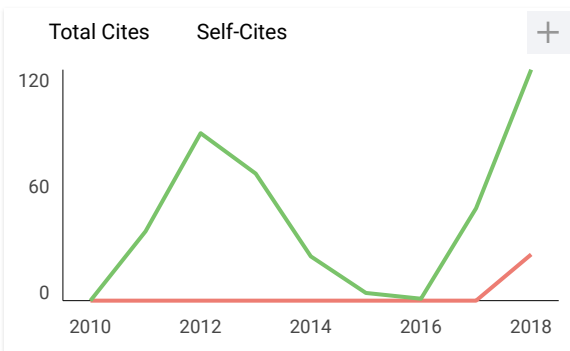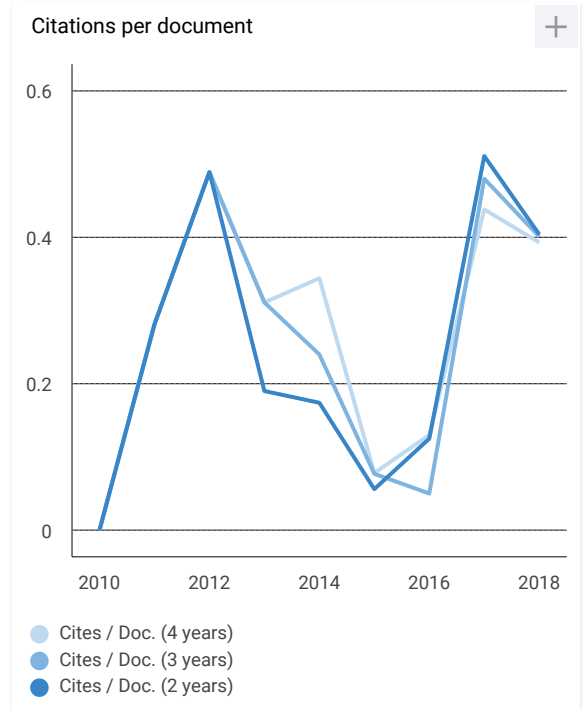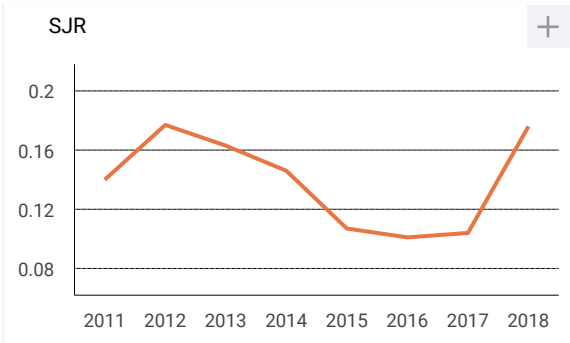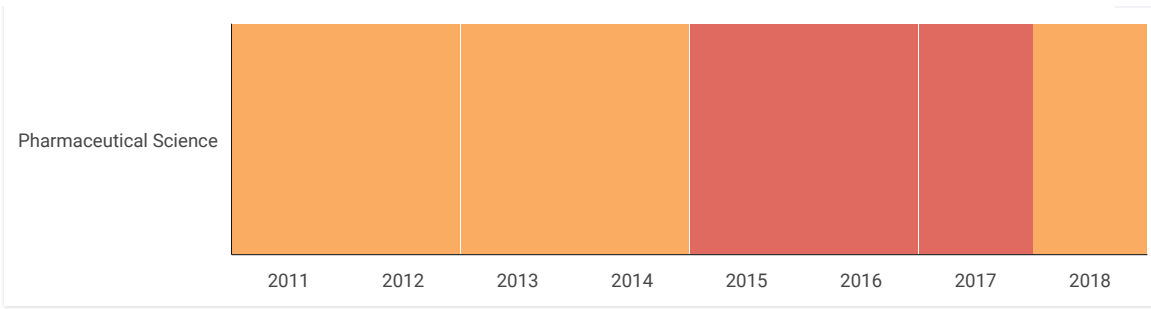
← Show this widget in your own website

Just copy the code below and paste within your html code:

`<a href="https://www.scimag`

RESEARCH ARTICLE

Analysis of Behavioral Factors on Medications in Gout Patients with Health belief Model Theory

Ika Ratna Hidayati¹, Daniar Adha Damayanti¹*, Liza Pristianty³

¹*Faculty of Health Sciences, University of Muhammadiyah Malang, Indonesia.*

²*Faculty of Pharmacy Airlangga University, Indonesia.*

*Corresponding Author: *Daniar Adha Damayanti*

Abstract

Objective: To identify behavioral factor associated with medication adherence using the Health Belief Model theory. Methods: This study used a cross sectional approach with accidental sampling technique. The number of samples used 64 people. The instruments were used the adherence to refills medication scale and the Health Belief Model questionnaire which had been tested for validation and reliability on the questionnaire. Data were analysed using multiple linear regression analysis. Conclusions : Each Health Belief Model theory variables which are perceived susceptibility, perceived severity, perceived benefits, and perceived barriers had a significant effect on medication adherence in gout patients (p <0.05) except self-efficacy had no significant effect (p>0.05). The Health Belief Model Theory had coefficient determination (R^2) 59.7%. This indicates that the Health Belief Model can predict the behavior of patients who adhere to treatment well.

Keywords: *Adherence, Health Belief Model, Gout, Community Health Center, Behavior.*

Introduction

Gout is a disease that occurs due to an increase in uric acid levels that are deposited into monosodium urate crystals around the joints and other organs [1]. Gout is one of dangerous diseases, because it not only affects patient's health but can also cause physical disabilities [2]. The prevalence of gout has increased which correlates with economic developments related to diet and lifestyle.

The prevalence of gout in the world has increased over time, especially in developed countries such as North America and Europe [3]. Based on data from the World Health Organization in 2018, the prevalence of gout arthritis around the world was 34.2% [4].

The increase in the incidence of gout did not only occur in developed countries, but also in developing countries, one of which was Indonesia. In 2013 the incidence of gout in Indonesia was 11.9%, the prevalence based on gender, showed 8.5% on women and 6.1% on men, while the prevalence of gout in East Java was 17% [5]. There were 4937 cases of gout in Malang City in 2019, both on elderly

and pre-elderly patients [6]. The goals of gout treatment are to reduce the concentration of uric acid levels, prevent recurrence of attacks, reduce pain, maintain joint function and prevent paralysis[7]. Gout is often associated with quite high morbidity but if gout patients adhere to the treatment it will be good for their health [8].

Improved quality of life is also affected by changes in lifestyle and healthy behaviour [9]. Adherence to prescribed medications is important for the management of chronic diseases, including gout [10]. Study conducted by Scheepers *et al* (2018) found that out of 57% of gout sufferers who received allopurinol therapy only 10.3% of them were adhering to their treatment, and within 6 months 70% of non-adherent gout patients would return to seek treatment [11]. In this study, the Health Belief Model theory approach is used because the Health Belief Model can explain a person's behavior towards medication adherence.

Health Belief Model is a belief model in individuals in determining behavior and

attitudes to do or not do health behavior [12]. According to the Health Belief Model, people change their habits when they know that the disease is serious. If they don't, they probably won't choose healthy behaviors [13].

The theory of the Health Belief Model has six constructs, which are susceptibility to gout (perceived susceptibility), patient perceptions of the severity of gout (perceived severity), perceived benefits of patients when adhering to treatment (perceived benefits), barriers to treatment adherence (perceived barriers), changing behavior that is caused by something (cues to action), and the patient's confidence to treatment adherence (self-efficacy) [14].

Material and Methods

This study used cross-sectional analytic observational method. A sample of 64 respondents selected based on inclusion criteria used accidental sampling technique. Data collection was carried out at Arjuno Health Center during June 2020. The modified Adherence to Refills Medication Scale (ARMS) questionnaire and the Health Belief Model questionnaire were used as research instruments.

The questionnaire also contains questions related to the demographic data of the respondents. Both questionnaires used have passed validation and reliability tests. The variables studied were perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and self-efficacy towards adherence to drug use in gout patients. Data were analyzed statistically using multiple linear regressions.

Statistical Analysis

The data were inputted into excel then exported and analyzed using SPSS V.23. Demographic data were analyzed using descriptive statistics (frequency and percentage). Chi square test was done to see adherence on respondent characteristics. Respondents' adherence to the Health Belief Model was analyzed using multiple regression models with standard errors of 95%. The significance value used is $p < 0.05$.

Ethical Clearance

Ethical clearance has been obtained based on the approval issued by the Health Research Ethics Commission of the University of Muhammadiyah Malang. (No.E.5.a/152/KEPK-UMM/VII/2020)

Results

64 respondents were included in the inclusion criteria. Most of the respondents are female (59%) divided into age ranges (31-40 years 6%, 41-50 years 20%, 51-60 years 47%, 61-70 years 24%, 71-80 years 3%). Most of the respondents work (52%). Respondents highest education level was high school (40%) while those who have tertiary education (8%). Most of the respondents had good adherence (55%) than those who were not (45%).Data on respondent's demographic characteristics shown in Table 1.

Table 1: Description of Respondents Characteristics

Characteristics		N	%
Adherence	Adhere	35	55%
	Not adhere	29	45%
Gender	Male	26	41
	Female	38	59
Age	31 – 40 years	4	6
	41 – 50 years	15	24
	51 – 60 years	30	47
	61 – 70 years	13	20
	71 – 80 years	2	3
Work	Working	33	48
	Unemployed	31	52
Education	Primary School	14	22
	Junior High School	19	30
	High School	26	40
	Diploma/University	5	8
Duration	<2 years	25	39
	>2 years	39	61

Table 2 shows the associations between the respondents' demographics and comments. Based on gender, men were more adherent than women (62%, 16/26 vs 53%, 20/38). Based on age, age adherent ranged from 31-40 years (75%, 3/4) and 71-80 years (100%, 2/2). Education levels that have good considerations are primary school (61%, 9/14) and high school (62%, 16/26). Respondents who had gout <2 years were more adherent (61%, 16/25) than those who had gout longer than 2 years (51%, 20/39).

Table 2: Association between respondents' demographics to adherence

Characteristics		Not adhere n (%)	Adhere n (%)	Total n (%)	Significance value
Gender	Male	10(38)	16(62)	26(100)	0.134
	Female	18(47)	20(53)	38(100)	
Age	31 – 40 tahun	1(25)	3(75)	4	0.000
	41 – 50 tahun	7(47)	8(53)	15	
	51 – 60 tahun	14(47)	16(53)	30	
	61 – 70 tahun	6(46)	7(54)	13	
	71 – 80 tahun	0(0)	2(100)	2	
Work	Working	16(48)	17(52)	33	0.803
	Unemployed	12(39)	19(61)	31	
Education	Primary School	5(36)	9(64)	14	0.012
	Junior High School	10(53)	9(47)	19	
	High School	10(38)	16(62)	26	
	Diploma/University	3(60)	2(40)	5	
Duration	<2 years	9(36)	16(64)	25	0.080
	>2 years	19(49)	20(51)	39	

In this study, significance value of perceived susceptibility resulted in (p = 0.014), people who adhere to treatment have a good level of perceived susceptibility. In terms of perceived severity has a significant effect on treatment adherence (p = 0.002), good perceived severity encourages individuals to adhere to treatment. Perceived benefits factor had a significant effect on treatment adherence (p = 0.013) including the Perceived barrier factor also had a significant effect on treatment adherence (p = 0.000). Only the self-efficacy factor did not have a significant effect on adherence (p = 0.128). Table 3 shows the association of adherence to the health belief model factor.

Table 3: Adherence association to health belief model factor

Variable	Not adhere	Adhere	Total	Significance value
Susceptibility				
Very good	22(55)	18 (45)	40	
Good	6 (25)	18 (75)	24	0.014
Not bad	0	0	0	
Bad	0	0	0	
Severity				
Very good	16(41)	23(59)	39	
Good	5(22)	20(80)	25	0.002
Not bad	0	0	0	
Bad	0	0	0	
Benefits				
Very good	16(73)	6(27)	22	
Good	12(29)	30(71)	42	0.013
Not bad	0	0	0	
Bad	0	0	0	
Barrier				
Very good	6(86)	1(14)	7	0.000
Good	17(40)	25(60)	42	
Not bad	5(33)	10(67)	15	
Bad	0	0	0	
Self-efficacy				
Very good	21(49)	22(51)	43	
Good	7(33)	14(64)	21	0.128
Not bad	0	0	0	
Bad	0	0	0	

Discussion

Adherence to the prescribed medication is important for the management of chronic diseases, including gout, because the long-term effectiveness of the drug is substantially clear [10].Adherence to the prescribed medication is important for the management of chronic diseases, including gout, because the long-term effectiveness of the drug is substantially clear. 10. Medication adherence is essential in gout management. Medication adherence affects the disease progression and the risk of complications [15].

In this study, 55% of respondents adhered to their treatment compared to 45% who did not adhere to their treatment. This research is in accordance to *Martini et al.* who found that 79% of gout patients were adherent to treatment based on self-reports [16]. Based on gender, men were more adhere than women (62% vs 53%).

Several studies have found that men are more adherent than women are less likely to adhere to treatment [11, 17]. Older age range 71-80 years has good medication adherence. The level of education that has fairly good adherence is primary school (62%) and high schoool (61%). This study is in line with Sheng's research which states that good adherence is at the high shool and primary school levels [18]. Older age range 71-80 years has good medication adherence. The level of education that has fairly good adherence is primary school (62%) and high schoool (61%).

This study is in line with Sheng's research which states that good adherence is at the high shool and primary school levels. Adherence of these respondents is also affectes by knowledge and perceptions of gout patients. Perception is a factor that influences medication adherence because patients see gout as a chronic condition that must be treated [19, 20]. This study shows the results of factors associated with adherence, Health Belief Model factor, which is related to the patient's perception of the disease that makes the patient adhere to the treatment. Based on the Health Belief Model, this study shows that the results of the five component factors studied are only one factor that does not affect adherence, which is self-

efficacy. The results of this study are not in line with the research in Shanghai by Shao et al. which shows that self-efficacy is the highest factor in influencing adherence because the perception of high self-efficacy causes them to be aware of their disease condition and can motivate them to recover [21].

Four factors that affect medication adherence are perceived susceptibility, perceived severity, perceived benefits have a significant factor in influencing medication adherence [22].The results of this study indicate a high level of adherence is in line with the high perception of seriousness regarding the risk of disease complications; this is in accordance with previous studies that the perception of seriousness is the main factor that can change medication adherence to chronic diseases such as diabetes, hypertension, and coronary heart disease [23, 24, 25, 26].

The low perception of barrier is needed to increase patient's adherence. The results of this study indicate that the perception of the barrier is low so that it makes a person obey and vice versa [27, 23]. This research is in line with Singh's research, which states that perceived susceptibility makes a person afraid of the disease and forces gout patients to adhere to treatment [28]. This can be the reason for the fairly high level of non-adherence to medication of respondents in this study, where increase in self-efficacy is needed.

Conclusion

In this study, it was found that the treatment adherence to gout patients was quite good (55%). Demographic factors associated with adherence to this study were age and education. In Health Belief Model, factors that have an influence on treatment adherence in gout patients are perceived susceptibility, perceived severity, perceived benefits, and perceived barriers. Self-efficacy factor does not have a significant effect on medication adherence. In the future, this research can be used as information to improve medication adherence to gout patients.

References

1. Dipiro J, Talbert RL, Yee GC, Matzke GR, Wells BG, Posey LM (2014)

Pharmacotherapy Handbook 9th Edition. 9th editio. (Education M-H, ed.). United States: McGraw-Hill Education.

2. FitzGerald JD, Dalbeth N, Mikuls T, et al (2020) American College of Rheumatology Guideline for the Management of Gout. Arthritis Care Res, 72(6):744-760. doi:10.1002/acr.24180

3. Kuo CF, Grainge MJ, Zhang W, Doherty M (2015) Global epidemiology of gout: Prevalence, incidence and risk factors. Nat. Rev. Rheumatol., 11(11):649-662. doi:10.1038/nrrheum.2015.91

4. Widyanto WF (2017) Artritis Gout Dan Perkembangannya. Saintika Med., 10(2):145. doi:10.22219/sm.v10i2.4182

5. Riskesdas K (2018) Hasil Utama Riset Kesehatan Dasar (RISKESDAS). 44. Jakarta. https://www.kemkes.go.id/resources/download/info-terkini/hasil-riskesdas-2018.pdf.

6. Dinas Kesehatan Kota Malang (2019) Laporan Kasus Asam Urat Di Kota Malang Tahun 2019. Malang.

7. Li Q, Li X, Wang J, et al (2019) Diagnosis and treatment for hyperuricemia and gout: A systematic review of clinical practice guidelines and consensus statements. BMJ Open. 9(8):1-13. doi:10.1136/bmjopen-2018-026677

8. Rothschild BM (2019) Gout and Pseudogout. Medscape. https://emedicine.medscape.com/article/329958-overview. Published.

9. Reach G, Chenuc G, Maigret P, Elias-Billon I, Martinez L, Flipo RM (2019) Implication of character traits in adherence to treatment in people with gout: A reason for considering nonadherence as a syndrome. Patient Prefer Adherence, 13: 1913-1926. doi:10.2147/PPA.S227329

10. Perez-Ruiz F, Desideri G (2018) Improving adherence to gout therapy: An expert review. Ther Clin Risk Manag., 14: 793-802. doi:10.2147/TCRM.S162956

11. Scheepers LEJM, Burden AM, Arts ICW, et al (2018) Medication adherence among gout patients initiated allopurinol: A retrospective cohort study in the Clinical Practice Research Datalink (CPRD). Rheumatol (United Kingdom). 57(9):1641-1650. doi:10.1093/rheumatology/key155

12. Conner M, Norman P (1998) Health Behavior. In: Comprehensive Clinical Psychology, 1-37. doi:10.4324/9781315732947-11

13. Jeihooni AK, Hidarnia A, Kaveh MH, Hajizadeh E, Askari A (2015) The effect of an educational program based on health belief model on preventing osteoporosis in women. Int. J. Prev. Med., 2015(November). doi:10.4103/2008-7802.170429

14. Glanz K, Rimer barbara k, Viswanath K (2008) Health Behavior and Health Education: Theory, Research, and Practice. 4th editio. United States of America: John Wiley & Sons, Inc.

15. Li Y, Piranavan P, Sundaresan D, Yood R (2019) Clinical Characteristics of Early-Onset Gout in Outpatient Setting. ACR Open Rheumatol., 1(7):397-402. doi:10.1002/acr2.11057

16. Martini N, Bryant L, Karu L Te, et al (2012) Living with gout in New Zealand: An exploratory study into People's knowledge about the disease and its treatment. J. Clin Rheumatol., 18(3):125-129. doi:10.1097/RHU.0b013e31824e1f6f

17. Zandman-Goddard G, Amital H, Shamrayevsky N, Raz R, Shalev V, Chodick G (2013) Rates of adherence and persistence with allopurinol therapy among gout patients in Israel. Rheumatol (United Kingdom). 52(6):1126-1131. doi:10.1093/rheumatology/kes431

18. Sheng F, Fang W, Zhang B, Sha Y, Zeng X (2017) Adherence to gout management recommendations of Chinese patients. Med (United States). 96(45):1-6. doi:10.1097/MD.0000000000008532

19. Spaetgens B, Pustjens T, Scheepers LEJM, Janssens HJEM, van der Linden S, Boonen A (2016) Knowledge, illness perceptions and stated clinical practice behaviour in management of gout: a mixed methods study in general practice. Clin Rheumatol., 35(8):2053-2061. doi:10.1007/s10067-016-3212-2

20. Singh JA (2014) Facilitators and barriers to adherence to urate-lowering therapy in African-Americans with gout: A qualitative study. Arthritis Res Ther., 16(2):1-13. doi:10.1186/ar4524

21. Shao C, Wang J, Liu J, Tian F, Li H (2018) Effect of a health belief model-based

education program on patients' belief, physical activity, and serum uric acid: A randomized controlled trial. Patient Prefer Adherence, 12:1239-1245. doi:10.2147/PPA.S166523

22. Venkatachalam J, Abrahm S, Singh Z, Stalin P, Sathya G (2015) Determinants of patient's adherence to hypertension medications in a rural population of Kancheepuram District in Tamil Nadu, South India. Indian J. Community Med., 40(1):33-37. doi:10.4103/0970-0218.149267

23. Ayele K, Tesfa B, Abebe L, Tilahun T, Girma E (2012) Self care behavior among patients with diabetes in harari, eastern ethiopia: The health belief model perspective. PLoS One, 7(4). doi:10.1371/journal.pone.0035515

24. Kamran A, Sadeghieh Ahari S, Biria M, Malepour A HH (2014) Determinants of Patient's Adherence to Hypertension Medications: Application of Health Belief Model Among Rural Patients. Ann. Med. Heal. Sci. Res., 4(6):922-927. doi:doi:10.4103/2141-9248.144914

25. Harvey JN, Lawson VL (2009) The importance of health belief models in determining self-care behaviour in diabetes. Diabet Med., 26(1):5-13. doi:10.1111/j.1464-5491.2008.02628.x

26. Shojaei S, Farhadloo R, Aein A, Vahedian M (2016) Effects of the Health Belief Model (HBM)-based educational program on the nutritional knowledge and behaviors of CABG patients. J Tehran Univ Hear Cent. 11(4):181-186.

27. Chan AHY, Cooper V, Lycett H, Horne R (2020) Practical Barriers to Medication Adherence: What Do Current Self- or Observer-Reported Instruments Assess? Front Pharmacol., 11(May):1-11. doi:10.3389/fphar.2020.00572

28. Singh JA, Herbey I, Bharat A, et al (2017) Gout Self-Management in African American Veterans: A Qualitative Exploration of Challenges and Solutions From Patients' Perspectives. Arthritis Care Res., 69(11):1724-1732. doi:10.1002/acr.23202