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Different Factors Influencing Self-medication with NSAIDS among Undergraduate students of College of Allied Medical Professions in LPU-Batangas

Kiana Maxine L. Papasin[1], Raezel Noreen M. Comia[1], Erica Roseshane R. Manalo[1], Marjorie M. Maramot[1], Jenela Marie M. Silang[1] Aaron Dell Cobeng, RPh[2], and Ms. Tricia Angela H. de Guzman, RPh[2]
College of Allied Medical Professions,
Lyceum of the Philippines University,
Capitol Site, Batangas City
[1]Student Researcher
[2] Faculty Researcher
Correspondence: kianapapasin@gmail.com

Abstract

Self-medication is described as any drug taken by the patient as a treatment for common diseases or symptoms excluding medical advice, prescriptions, or supervision from a physician. The main goal of this study is to determine the various factors that influence self-medication among undergraduates at LPU-Batangas' College of Allied Medical Professions. A total of 281 students from College of Allied Medical Professions from LPU-Batangas are the participants of the study. Data was collected through google forms by an adapted and modified questionnaires from Gaheyr, F., (2018) consisting of 4 sections namely the respondents demographic profile, knowledge, influencing factors and practice of self-medication. Results show that respondents generally use self-medication practices if the individual have basic knowledge about the action of the non-prescription drug and if the safety of the medication is ensured. Most of the respondents self-medicate for fever and headache with the total of 243 or 86.47%. Such practices were influenced mostly whenever the participant feels sick at home.

Keywords*: Influencing Factors OTC, Prescription*

INTRODUCTION

In the Philippines, the most widespread intervention in the treatment of diseases is self-medication. Taking medication is a standard part of the daily lives of people without understanding that there are potential undesired effects varying from moderate to severe. The majority of common health conditions are prevalently being treated by over-the-counter (OTC) medications. This practice contributes to the self-medication movement and has become one of the methods for gaining influence over one's health (See, Arce Jr, Caño, & Plaza, 2015).

A pharmaceutical advisory about consumer warning on Self-Medication was issued by FDA Advisory No. 2013-057, indicating the requirements for correct self-medication. It is due to the concern over Filipinos who self-medicate on their ailments and conditions using OTC medicines and prescription medicines. The medicine must be safe, effective, and properly indicated for health conditions that are self-recognized by the patient are some of the requirements for responsible self-medication. Any medication taken by a patient as a cure for common diseases or without first consulting a physician for a diagnosis, prescription, or medical supervision is characterized as self-medication. It is globally known to be a common practice and the prevalence reported is very high. It is considered as part of the essential components of self-care, which involves individuals and family members making health-related decisions. Self-medication is becoming increasingly popular because it provides healthcare facilities with benefits in terms of enhanced patient outcomes and cost savings and allows individuals to become more independent in making health-related decisions. Skilled individuals, preferably pharmacists, should facilitate rational drug use, provide information on over-the-counter (OTC) drugs and the dangers that may result from irrational use, and, where necessary, refer people to medical care to support effective self-medication.

Efficient self-medication requires people to be able to identify symptoms and select the right over-the-counter (OTC) drug, to be aware of possible risks and side effects associated with the medication, to read and follow the Package Information Leaflets (PILs) directions, and to know when to seek health care professionals' assistance. The self-medication decision process depends not only on individual health, disease, and medication awareness, attitudes, and behaviors but also on cultural and social factors. Advertising in various mass media, in particular, a potent

source of information and can affect the purchasing and use of OTC medicines.

However, inadequate understanding of self-medication medications may have life-threatening consequences. Based on the observations of the researchers, self-medication of customers in community pharmacies during their community/retail pharmacy internship is common, and some would even compulsively request prescription antibiotics. Pain is one of the most common reasons why people self-medicate. People tend to self-medicate with over-the-counter (OTC) drugs rather than seek medical help from health care providers, mainly if the pain is mild to moderate. Most of the time, patients consume analgesics without consulting a doctor because it can save more money that way. A big concern is a medical outcome arising from treatment options that substitute the doctor's prescription. Self-medication is not only a current problem but also a public health concern because it affects how a disease is handled and/or treated in a fair timeframe, and thus, in the case of severe types, has implications for healthcare costs.

The presence of pain is considered a vital symptom, and significant relief from the pain until it disappears is a fundamental right of every individual. However, in relation to the aspect of non-responsible, self-medication is far from being a fully risk-free practice. Improper self-diagnosis, delays in obtaining medical advice when necessary, rare but serious adverse effects, harmful drug-drug interactions, improper administration, and inappropriate dosage are all possible consequences of self-medication. Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used to treat headaches, fever, menstrual cramps, muscle cramps, and arthritis and are widely used for self-medication.

The general objective of the study is to assess the different factors that influence self-medication with NSAIDS among the undergraduate students of the College of Allied Medical Professions in LPU-Batangas. More specifically, (1) It presented the demographic profile of the undergraduates from CAMP in terms of sex, age, year level, program wherein they are enrolled, frequency of self-medication, and the common illness wherein they apply self-medication; (2) gather information on the knowledge, influencing factors and practice of self-medication specifically of the drugs NSAIDs among undergraduates of College of Allied Medical Professions in LPU- Batangas; (3) This study aims to provide information to the university and the college wherein the respondents and researchers are currently enrolled. The study is focused on different factors influencing self-medication with

NSAIDS of undergraduates students of College of Allied Medical Professions in LPU-Batangas. The proponents of the study believed that there are increasing issues regarding the variables of self-medication. Specifically, this study has an in-depth study on the important determinant factors influencing the self-medication of over-the-counter NSAIDS among undergraduates, their knowledge, and common practice on self-medication. In addition, it aims to help in determining the different factors influencing self-medication with NSAIDs since they are commonly used without a prescription; they serve the largest OTC drug market with an average benefit/risk ratio that is beneficial when used accordingly. In this study, the researchers will be able to recommend the need for further education and supplied awareness of proper self-medication and its risks. Moreover, to contribute and enlighten the reality of NSAIDS consumption and acquisition regarding different determinants of self-care. This study is also significant to show the importance of gaining knowledge and having appropriate information about the harmful effects of self- medications.

MATERIALS AND METHODS

Research Design

The qualitative descriptive cross-sectional survey method was used to assess the different factors influencing self-medication of NSAIDS among undergraduate students of CAMP in LPU-Batangas. In this method, the researchers were able to determine accurate and comprehensive data the way it existed at the research time. Cross-sectional surveys can also be used to measure a population's behaviors, perceptions, awareness, and values concerning a specific health-related occurrence. (Oso, 2009)

Participants

A total of 281 students from CAMP are the participants of the study. Specifically, a number of 201 students from Medical Laboratory Science, 36 students from Pharmacy, 10 students from Physical Therapy, 27 students from Radiologic Technology and 7 students from Biology. Qualitative, in-depth, self-administered questionnaires will be taken from undergraduate students of College of Allied Medical Professions in LPU-Batangas, identified through purposive and convenience sampling. The study used a structured questionnaire for data collection, disseminated through online google forms

Data Gathering Instrument

The researchers used an adapted and modified cross-sectional survey with a qualitative approach on a research done by Gaheyr, F., on a study entitled "Knowledge, Perception, and Practices of Self Medication Among Households in Children Under Five Years in Borama District, Somaliland." A structured questionnaire with four (4) parts was used to collect data. The demographic information of the respondents is presented in the first segment. The knowledge, influencing factors, and practice of self-medication are covered in the second to fourth sections of the questionnaire, respectively. The questionnaires are adopted to google forms for the ease of collecting data and minimizing face-to-face contact due to the pandemic.

The research questionnaires consider the following variables: 1) General information of the participants; 2) Self-Medication Habits on NSAIDs, including self-medication use, their knowledge, and their practice on using self-medication. The set of questionnaires were validated and approved by the thesis advisers under the CAMP Department and the statistician.

Data Gathering Procedure

The data for this research study was collected using survey questionnaires with the aid of google forms sent to each respondent. The study survey was entirely voluntary, and respondents were granted complete independence in answering the questions. Participants were given a certain amount of time to respond. The data were tallied, and the data was processed using the appropriate statistical methods.

Ethical Consideration

In line with the Republic Act of the Philippines Act No. 10173, the Data Privacy Act of 2012, this research study ensured the security, the confidentiality of data and information collected, and anonymity of the respondents; thus, no name was mentioned throughout the study. Furthermore, the researchers attached a consent form with the questionnaire used to ensure the willingness and voluntary participation of the respondents to take part in the study.

Data Analysis

The researchers tabulated, evaluated, and interpreted the data collected from the questionnaire. All of the data which was obtained that was collected from the questionnaire were tabulated, interpreted, and analyzed by the researchers. All data gathered is used to meet the study's objectives: to determine the factors that influence self-medication among the undergraduate students of CAMP for LPU-Batangas.

The researchers will use frequency and percentage distribution to describe the demographic profile and common source of information. The quantifying of responses in knowledge, influencing factors, and practice of self-medication will be based on the 4-point Likert scale wherein the values were ranged from 1 to 4, with one being the lowest and four equivalents to the highest score and ranking system. Equivalent verbal descriptions were used for each of the numerical values.

The options were interpreted in terms of the following data:

Options	Verbal Interpretation	Scale or Range
4	Strongly Agree	3.50 - 4.00
3	Agree	2.50 - 3.49
2	Disagree	1.50 - 2.49
1	Strongly Disagree	1.00 - 1.49

The researchers utilized the formula below to determine the weighted mean.

$W = (\Sigma (f \cdot x))/(\Sigma N)$

Where:

W = weighted mean
Σ = summation
x = number of responses
f = weight given to each response
N = total number of responses or population

RESULTS AND DISCUSSION

Table 1
Frequency Table for the Respondent's Demographic Profile

Profile	F	%
Gender		
Female	**231**	**82.2**
Male	50	17.8
Program		
BS MLS	**201**	**71.5**
BS Biology	7	2.5
BS Pharmacy	36	12.8
BS Physical Therapy	10	3.6
BS Radiologic Technology	27	9.6
Year Level		
1st Year	95	33.8
2nd year	60	21.4
3rd year	**123**	**43.8**
4th year	1	.4
5th year	2	.7
Age		
16 – 20	**172**	**61.2**
21 – 25	105	37.4
26 – 30	3	1.1
31 – 35	1	.4
36 – 40		
Do you practice self – medication?		
Yes	281	100.0
No	0	0
How often do respondents self-medicate?		
Most of the time	60	21.4
Sometimes	**114**	**40.6**
Rarely	66	23.5
When symptoms is mild	41	14.6
I use self-medication when indicated for		
Fever and headache	**243**	**86.47**
Cough and cold	196	69.75
Acidity	29	10.32
Nausea and vomiting	40	14.23
Diarrhea	101	35.94
Skin problems	29	10.32
Eye/ear problems	6	2.14
Others		
Allergies	1	0.36
Depression & anxiety	1	0.36
Dysmenorrhea	1	0.36

Table 1 presents the demographic profile of the respondents. It showed that among the 281 respondents, 231 or 82.2% were female, and 50 or 17.8% were male. The data indicates that the College of Allied Medical Professions students who were experiencing these factors were mainly females. The table shows that majority of the respondents were from BS MLS (BS Medical Laboratory Science), with a total of 201 or 71.5%. It also showed that most of the respondents were 3rd-year students with a total of 123 or 43.8%. The table demonstrates that the majority of the respondents (172 or 61.2 percent) were between the ages of 16 and 20.

All the respondents answered yes to practicing self-medication. Kassie, Bifftu, and Mekonnen (2018) said that self-medication is done for various reasons, including the need to take care of oneself, concern for ill family members, a shortage of healthcare services, indifference, poverty, excessive drug advertising, and the easy access or availability of drugs in areas other than pharmacies. In the second question, how often do respondents self-medicate, 114 or 40.6% answered sometimes. Moreover, the data showed that most of the respondents self-medicate for fever and headache with a total of 243 or 86.47%, followed by cough and cold with a total of 196 or 69.75%, and diarrhea with a total of 101 or 35.94%. Various medical conditions or symptoms such as fever, headache, common cold, cough, and diarrhea were said to be treated by self-medication practices in many published literature, were then described as "minor" and "common" (Sridhar, Shariff, Dallah, Anas, Ayman, & Rao, 2018).

Table 2 shows the respondents' knowledge on self-medication. The responses have a composite mean of 3.27. Data showed that the respondents strongly agree that non-prescription drugs require basic knowledge of drug action, with a computed mean of 3.60. Furthermore, the item stating that *reading and recognizing the leaflets inside the medication packaging is necessary before taking medicine* was also strongly agreed on by the respondents (3.52).

Thus, this demonstrates that responsible self-medication generally requires a basic understanding of the drug and how it affects the body. Self-medication, when done correctly, reduces the need for medical care, shortening the number of times spent waiting to see a doctor, and reduces costs, particularly in economically disadvantaged countries with limited healthcare services. (Helal & Abou-ElWafa, 2017)

Table 2
Respondents' Knowledge on Self - Medication

	mean	Interpretation
Non-prescription drugs require basic knowledge about drug action.	3.60	Strongly Agree
Non-prescription drugs can lead to some side effects (adverse effects) including death.	3.17	Agree
Non-prescription drugs can lead to body resistance.	3.10	Agree
Continuous use of non-prescription drugs may cause dependency.	3.12	Agree
The reading and understanding of leaflets inside the packaging of the drug is important before taking medicine.	3.52	Strongly Agree
It is necessary to consult qualified medical personnel when feeling sick.	3.40	Agree
Most of the time, non-prescription drugs taken during self- medication end up complicating the illness.	2.96	Agree
Composite Mean	*3.27*	*Agree*

Legend:1 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree)

Moreover, the respondents also agreed on the item indicating that *it is necessary to consult qualified medical personnel when feeling sick,* which has a computed mean of 3.40. Thus, this shows that the majority of the respondents acknowledge the significance of consulting a medical professional when they feel sick.

Self-medication is a cost-effective therapeutic option for many common self-limiting illnesses around the world (Kuku & Odusanya, 2011). However, inadequate knowledge and understanding of over-the-counter (OTC) medications can lead to negative consequences. Adverse drug reactions, incorrect drug

usage, drug-food, drug-drug, drug-disease interactions, toxicity, and overuse are all factors associated with inappropriate self-medication (Bekele et al., 2021). Despite having the lowest computed mean of 2.96, the respondents agree that most of the time, non-prescription drugs taken during self-medication end up complicating the illness. In addition, the item stating that *non-prescription drugs can lead to body resistance* was also agreed on by the respondents (3.10). Lastly, the item stating that *continuous use of non-prescription drugs may cause dependency* was also agreed upon by the respondents, with a computed mean of 3.12. Thus, this proves the respondents are aware of the negative effects of irrational self-medication.

Table 3
Influencing Factors on Self – Medication

	Mean	Interpretation
I self-medicate at home whenever I am sick.	3.22	Agree
Most of the time I practice self-medication whenever I am sick without consulting a licensed physician.	2.99	Agree
The advices from my relatives, neighbors, friends, and others often influence my decision in buying medicines.	2.73	Agree
The prices of medicines influence my decision in buying medications.	2.67	Agree
Composite Mean	*2.90*	*Agree*

Legend:1 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree

Table 3 shows the influencing factors on self-medication. The responses have a composite mean of 2.90. Among the listed items, the item with the highest mean (3.22) states that the majority of the respondents self-medicate at home whenever they are sick. Moreover, most of the time, the respondents practice self-medication whenever they are sick without consulting a licensed physician (2.99). Whereas the advice from relatives, neighbors, friends, and others often influence the respondent's decision in buying medicines with a computed mean of 2.73. On the other hand, the prices of medicines also influence the respondent's decision in

buying medications with a computed mean of 2.67. All of the statements listed in table 3 are agreed upon by the respondents as influencing factors on self-medication.

In both developed and developing countries, such as the Philippines, self-medication has remained widespread, and the trend is growing among youths, especially university students. The findings show that self-medication at home is a common occurrence in the respondents' way of treating their common illness. It matched the 62.9 percent of common self-medication practice among university students found in Helal and Abou-ElWafa's study (2017).

Practicing self-medication without consulting a physician was also agreed upon by the respondents. One of the causes may be the increased cost of medical consultations, as well as the time-consuming treatment procedure, which could be a disadvantage to the university students participating in our research.

Furthermore, respondents concluded and agreed that receiving advice primarily from family, neighbors, and friends influenced their decision to purchase medicine. This could mean easy access to over-the-counter NSAIDS and a socially ingrained acceptance of self-medication (Helal & Abou-ElWafa, 2017).

Lastly, the prices of medicines also influence the respondent's decision in buying medications. For instance, a study by Ball and Tisocki in 2019 investigated the high drug prices in the Philippines; they pointed out that a 12% value-added tax in the Philippines increases the price of drugs substantially. This may have an effect on the respondent's purchasing decision, as high prices may be a deterrent.

Table 4 shows the respondents' practice of self-medication. The responses have a composite mean of 3.09. Among the listed items, the item with the highest mean states that most of the respondents always ensure the safety of the medication, with the computed mean of 3.63. Moreover, the respondents also agreed that they are aware of the possible side effects before using a drug, with a calculated mean of 3.42.

On the other hand, the item with the statement I only use self-medication on conditions where I feel like I can manage my sickness on my own was also agreed on by the respondents (3.41). This shows that the majority of the respondents used medication depending on their expertise. The improvement in patient medical knowledge has been a significant factor in self-medication. This, in turn, has also resulted from the increase in accessibility to smartphones and widespread access to internet services (Vidyavati et al., 2016)

Table 4
Respondents' Practice on Self - Medication

	Mean	Interpretation
I always ensure the safety of the medication.	3.63	Strongly Agree
I only use self-medication on conditions where I feel like I can manage my sickness on my own.	3.41	Agree
When the conditions are similar to previous sickness, then I can use non-prescription drugs.	2.99	Agree
Whenever I use self-medication, I always ensure that I know how to use the medicines.	3.37	Agree
I can always use non-prescription drugs when someone recommends.	2.28	Agree
Before I use a drug, I must be aware of its possible side effects.	3.42	Agree
Whenever I do self-medication, I must have information on how to monitor the effects of the drug.	3.35	Agree
Sometimes, in the event of sickness, I use previous prescriptions to buy new drugs	2.37	Agree
I seek professional advice soon after I feel unwell.	3.03	Agree
Composite Mean	***3.09***	***Agree***

Legend:1 – 1.49 (Strongly Disagree), 1.50 – 2.49 (Disagree), 2.50 – 3.49 (Agree), 3.50 – 4.00 (Strongly Agree)

. The previous studies stated that some people used drugs depending on their expertise and whether they had prior contact with similar illnesses (Dawood et al., 2016).

Despite having the lowest mean of 2.28, the respondents still agreed that they always use non-prescription drugs when someone recommends them. Furthermore, respondents also agreed that they use preceding prescriptions to acquire new drugs in the event of sickness, with a composite mean of 2.37. Lastly, respondents also concluded that when the conditions are similar to the previous

illness, they can use non-prescription drugs, with a computed mean of 2.99. According to the researchers, in that analysis in Brazil, cited by university students as I have already experienced the symptom and know what to take (57.2%) (Muccillo- Baisch et al., 2012).

CONCLUSION

1. The majority of the respondents were female, ages 16 – 20, who are in their 3rd year in BSMLS.
2. Data shows that respondents generally use self-medication practices if the individual has basic knowledge about the action of the non-prescription drug and if the safety of the medication is ensured. Such practices were influenced mostly whenever the participant feels sick at home.
3. Findings of the study generally reveal that respondents' practices self-medication from time to time with enough knowledge before executing the practice.

RECOMMENDATIONS

1. For the students of LPU to continue to be aware of the knowledge and safety measures on self-medication, they may have regular seminars or courses to improve their knowledge on self-medication continuously.
2. For community pharmacists, they may provide proper patient counseling as much as possible to inform the consumers on how to take NSAIDS properly and what should be avoided to lessen the adverse effects associated with NSAIDs.
3. The healthcare professionals may conduct an annual webinar for all the consumers to lessen the wrong advice that may influence consumer's buying decisions when it comes to self-medication and improve the community's overall knowledge on the safe administration of NSAIDs.
4. For the future researcher to conduct a study on other variables since the study is limited only on the knowledge, influence, and practice of self-medication among undergraduate students of LPU-Batangas, others may conduct a similar study more specifically on certain factors that may improve the proper self-medication practice of consumers in the community pharmacy setting.

REFERENCES

Abdulla, A., Adams, N., Bone, M., Elliott, A.M., Gaffin, J., Jones, D., Knaggs, R., Martin, D., Sampson, L., Schofield, P., & British Geriatric Society (2013). Guidance on the management of pain in older people. Age and ageing, 42 Suppl 1, i1–i57.https://doi.org/10.1093/ageing/afs200

Ansari, M., Humagain, B., Hassali, M. (2017). Research in Social and Administrative pharmacy: RSAP. 13(3):658-659. doi: 10.1016/j.sapharm.2017.01.004. Epub 2017

Ball D., Tisocki K. (2019) Medicines Price Components in the Philippines. Available online: http://www.haiweb.org/wp-content/uploads/2015/07/Philippines-Report-2008-Price-Components-Pricing-Surveys.pdf.

Bassols, A., Bosch, F., & Baños, J. E. (2002). How does the general population treat their pain? A survey in Catalonia, Spain. Journal of pain and symptom management, 23(4), 318–328. https://doi.org/10.1016/s0885-3924(01)00415-8

Bekele, K. M., Abay, A. M., Mengistu, K. A., Atsbeha, B. W., Demeke, C. A., Belay, W. S., & Yimenu, D. K. (2020). Knowledge, Attitude, and Practice on Over-the-Counter Drugs Among Pharmacy and Medical Students: A Facility-Based Cross-Sectional Study. Integrated pharmacy research & practice, 9, 135–146. https://doi.org/10.2147/IPRP.S266786

Darshana, B., (2014) Self-medication: A current challenge. J Basic Clin Pharm. 2014;5(1):19-23. DOI: 10.5530/jyp.2019.11.82

Davis, J. S., Lee, H. Y., Kim, J., Advani, S. M., Peng, H. L., Banfield, E., Hawk, E. T., Chang, S., & Frazier-Wood, A. C. (2017). Use of non-steroidal anti-inflammatory drugs in US adults: changes over time and by demographic. Open heart, 4(1), e000550. https://doi.org/10.1136/openhrt-2016-000550

Dawood OT, Hassali MA, Saleem F. (2016). A qualitative study exploring medicines use pattern and practice among general public in Malaysia. Pharm Pract (Granada). 2016;14(2):740.doi:10.18549/PharmPract.2016.02.740

Dol, H., Shinde, V., Gandhi, S., & Shelar, S. (2019). Self-Medication: Key Component of Medication Errors. European Journal of Pharmaceutical and Medical Research, 6(3), 532-534.

Doomra, R., & Goyal, A. (2020). NSAIDs and self-medication: A serious concern. Journal of family medicine and primary

care,9(5),2183–2185.https://doi.org/10.4103/jfmpc.jfmpc_
201_20

Esan, D. T., Fasoro, A. A., Odesanya, O. E., Esan, T. O., Ojo, E. F.,
& Faeji, C. O. (2018). Assessment of Self-Medication
Practices and Its Associated Factors among
Undergraduates of a Private University in Nigeria. Journal
of environmental and public health, 2018, 5439079.
https://doi.org/10.1155/2018/5439079

Gaheyr., Fredrick. (2018) Knowledge, Perception and Practices of
Self Medication among Households in Children Under Five
Years in Borama District, Somaliland.
https://www.umu.se/globalassets/organisation/fakulteter
/medfak/institutionen-for-epidemiologi-och-global-
halsa/somalia/yusuf-hared.pdf

Gras, M., Champel, V., Masmoudi, K., Liabeuf, S. (2020) Self-
medication practices and their characteristics among
French university students. Therapie. 75(5):419-428. doi:
10.1016/j.therap.2020.02.019. Epub 2020 Feb 25. PMID:
32204933.

Gómez-Acebo, I., Dierssen-Sotos, T., de Pedro, M. et al. (2018)
Epidemiology of non-steroidal anti-inflammatory drugs
consumption in Spain. The MCC-Spain study. BMC Public
Health 18, 1134 (2018). https://doi.org/10.1186/s12889-
018-6019-z

Helal, R.M., Abou-ElWafa, H.S. (2017) Self-Medication in University
Students from the City of Mansoura, Egypt Journal of
Environmental and Public Health, vol. 2017

Ho, K., (2020) Perceptions and Beliefs Regarding NSAIDs in the
Asia-Pacific Region. J Pain Res. 2020;13:437-446
https://doi.org/10.2147/JPR.S229387

Kassie, A.D., Bifftu, B.B. & Mekonnen, H.S. (2018). Self-medication
practice and associated factors among adult household
members in Meket district, Northeast Ethiopia, 2017.
https://doi.org/10.1186/s40360-018-0205-6

Kuku, Kayode & Odusanya, Olumuyiwa. (2011). Self-Medication:
Knowledge , Attitude and Practices in the Ikeja Local Govt.
Area of Lagos Nigeria. 10.13140/RG.2.2.14749.00489.

Lee See, G., Arce, F., Caño, J., Plaza, JA. (2015) Consumers'
Knowledge Cebu City. IJPTP, 2015, 6(3),, Attitude and
Practices on Over - The – Counter (OTC) Medicine use in
2136-2139.

Majumdar S, Mukhopadhyay K, Mukherjee S, Chatterjee C,
Barkondaj B, (2020). Determinants and effects of self-

administration with NSAIDs in a tertiary care hospital of Eastern India. Retrieved from: https://www.ipinnovative.com/journal-article-file/11010

Mehta RK, Sharma S. Knowledge, attitude and practice of self-medication among medical students. Age (Years). 2015;20(49):65.3. doi: 10.2147/IPRP.S266786

Melencio, D., Monterozo, R., Novelo, C. (2016) The Use and Understanding of Over-the-Counter medications among University of Santo Tomas College Undergraduate students. International Journal of Scientific & Engineering Research, Volume 7, Issue 5, May-2016. ISSN 2229-5518. https://www.ijser.org/researchpaper/The-Use-and Understanding-of-Over-the-Counter-medications-among-University-of-Santo-Tomas-College-Undergraduate Students.pdf

Mohammad, A.T, Tannir, M.A, Harbi, A., Mutiri, N., Juwaie, M., Altanir, Y. (2015) Prevalence and Associated Factors of Self-Medication with Prescription Drugs among Saudi Adults. International Journal of Pharmaceutical & Biological Archives 2015; 6(5): 26-31

Monteiro, C., Miranda, C., Brito, F. et al. (2017) Consumption patterns of NSAIDs in central Portugal and the role of pharmacy professionals in promoting their rational use. Drugs Ther Perspect 33, 32–40 https://doi.org/10.1007/s40267-016-0352-z

Ocan, M., Bwanga, F., Bbosa, G. S., Bagenda, D., Waako, P., Ogwal-Okeng, J., et al. (2014). Patterns and predictors of self-medication in northern Uganda. PloS One 9 (3), e92323. doi:10.1371/journal.pone.009

Okyay, R. A., & Erdoğan, A. (2017). Self-medication practices and rational drug use habits among university students: a cross-sectional study from Kahramanmaraş, Turkey. PeerJ, 5, e3990. https://doi.org/10.7717/peerj.39

Onder, G., Pellicciotti, F., Gambassi, G., & Bernabei, R. (2004). NSAID-related psychiatric adverse events: who is at risk?. Drugs, 64(23), 2619–2627. https://doi.org/10.2165/00003495-200464230-00001

Pandaya RN, Jhaveri KS, Vyas FI, Patel VJ. Prevalence, pattern and perceptions pf self- medication in medical students. Int Basic Clin Pharmacol. 2013 Jun;2 (3): 275- 280

Perrot, S., Cittée, J., Louis, P., Quentin, B., Robert, C., Milon, J. Y., Bismut, H., & Baumelou, A. (2019). Self-medication in pain management: The state of the art of pharmacists' role for

optimal Over-The-Counter analgesic use. European journal of pain (London, England), 23(10), 1747–1762. https://doi.org/10.1002/ejp.1459

Rogozea, Liliana., Dinu, Eleonora A., Constantin, Dan., Leaşu, Florin-Gabriel (2020) Self-Medicating for Pain: A Public Health Perspective. Retrieved from: https://journals.lww.com/americantherapeutics/Abstract/ 2020/08000/Self_Medicating_for_Pain__A_Public_Health m.8aspx

Ruiz M. E. (2010). Risks of self-medication   practices. Retrieved from: https://pubmed.ncbi.nlm.nih.gov/20615179/

Sridhar, S. B., Shariff, A., Dallah, L., Anas, D., Ayman, M., & Rao, P. G. (2018). Assessment of Nature, Reasons, and Consequences of Self-medication Practice among General Population of Ras Al-Khaimah, UAE. Retrieved from: https://pubmed.ncbi.nlm.nih.gov/29552527/

Shah, K., Halder, S., & Haider, S. S. (2021). Assessment of knowledge, perception, and awareness about self-medication practices among university students in Nepal. Heliyon, 7(1), e05976. https://doi.org/10.1016/j. heliyon.2021.e05976

Stegemann, S., Ecker, F., Maio, M., Kraahs, P., Wohlfart, R., Breitkreutz, J., Zimmer, A., Bar-Shalom,D., Hettrich, P., Broegmann, B. (2010) Geriatric drug therapy: Neglecting the inevitable majority. https://pubmed. ncbi.nlm.nih.gov/20478411/

Supakanya, W., Amaraporn, W., Melhado, K., Janani, R., (2018) A comprehensiceReview of Non-steroidal Anti-inflammatory Drug Use in The Elderly. Aging Dis. 2018 Feb; 9(1): 143–150.Published online 2018 Feb 1. doi: 10.14336/AD.2017.0306

Thapa S, Shankar PR, Palaian S, Aljadhey H. (2016). Promoting rational self-medication of nonsteroidal anti-inflammatory drugs in Nepal.https://www.researchgate.net

Vandraas, K. F., Spigset, O., Mahic, M., & Slørdal, L. (2010). Non-steroidal anti-inflammatory drugs: use and co-treatment with potentially interacting medications in the elderly. European journal of clinical pharmacology, 66(8), 823–829.https://doi.org/10.1007/s00228-010-0825-2

Vidyavati, S., Sneha, A., Kamarudin, J., Katti, S. (2016). Self-Medication-Reasons, Risks and Benefits. International Journal of Healthcare and Biomedical research, Vol 04, 21-24 DOI:10.13140/RG.2.2.18763.95520

Wang, GS., Reynolds, KM., Banner W., et al. (2020) Medication errors from over-the-counter cough and cold medications in children. Acad Ped. 2020;20(3)(3):327-332. doi:10.1016/j.acap.2019.09.006.

Yaun, E. (2015) Self – medication practices among the residents in Cebu City, Central Philippines. University of San Carlos Graduate thesis. IJPTP, 2015, 6(3), 2136-2