



Understanding The Role Of Health Literacy In Self-Medication: Findings From A Cross-Sectional Study In West Godavari District Of Andhra Pradesh

Sri Krishna Veni Balla¹, Dr. Pavan Kumar Yanamadala*², Rupa Lavanya Gogulamanda³, Manjusha Eduresi⁴, Nandini Palivela⁵, Hepsibha Nagabathula⁶, K. L. N. S. Srisurya⁷, Durga Bhavani Danduprolu⁸

¹ Student of Pharm. D at Aditya Pharmacy College, Surampalem-533437, Andhra Pradesh, India

² Associate Professor at Aditya Pharmacy College, Surampalem-533437, Andhra Pradesh, India

^{3,5} Interns of Pharm. D at Aditya Pharmacy College, Surampalem-533437, Andhra Pradesh, India

⁴ Student at Andhra University College of Pharmaceutical Sciences, Visakhapatnam, Andhra Pradesh, India

^{6,8} Interns of Pharm. D at GIET School of Pharmacy, Rajahmundry-533296, Andhra Pradesh, India

⁷ Student of Pharm. D at Viswanadha Institute of Pharmaceutical Sciences, Sontyam-531173, Andhra Pradesh, India

***Corresponding Author:** Dr. Pavan Kumar Yanamadala

*Associate Professor in the Department of Pharmacy Practice, Aditya Pharmacy College (A), Surampalem-533437, Andhra Pradesh, India Email: pavan.yanamadala@gmail.com Ph.: +91 9441496543

Abstract

Background: Self-medication is the practice of treating any ailment or symptom that a person diagnoses for themselves without first visiting a physician. Different communities display different behaviours; hence the purpose of this study is to statistically investigate the patterns and prevalence of self-medication usage. Although health literacy practices have been increasingly recommended in public health literature, there is a lack of studies that examine the relationships between health literacy and self-medication.

Methodology: A quantitative, descriptive, cross-sectional, community-based research approach was used in a sample of 316 participants. Health literacy was measured by Single Item Literacy Screener. Data was analysed using SPSS 29.0 version.

Results: A total of 316 participants agreed to participate (63.9% were females). The results showed that more than half, 53.4% had adequate health literacy. The prevalence of self-medication was 74%, in these 52% had used medicines by previous prescription and 8% used alternative medicine. There was a significant relationship between the overall health literacy level and practice of self-medication.

Conclusion: Improving the health literacy level of the public can reduce inappropriate self-medication. Therefore, the design and implementation of training programs are necessary to increase the perception on the risk of self-medication. Appropriate reading skills are important for accessing health information, using health care services, and achieving desirable health outcomes.

CC License

CC-BY-NC-SA 4.0

Keywords: Self-medication, health literacy, single item health literacy screener, Self-Medication, Medication Adherence, Rural Population

Introduction:

Self-medication refers to the practice of individuals treating their own health conditions with over-the-counter medications or other remedies without consulting a healthcare professional¹. While it can be appropriate for minor ailments, responsible self-medication requires a good understanding of one's health, appropriate use of medications, and awareness of potential risks and interactions. It's crucial to avoid self-diagnosis for serious conditions and consult a healthcare professional when in doubt. Health literacy is the ability to obtain, read, understand, and use healthcare information in order to make appropriate health decisions and follow instructions for treatment². The purpose of this study is to statistically investigate the patterns and prevalence of non-prescription medication usage. Although health literacy practices have been increasingly recommended in public health literature, there is a lack of studies that examine the relationships between health literacy and self-medication.

Due to the lack of comprehensive health literacy measures, the World Health Organization (WHO) recommends that patients enhance their analytical and social abilities in order to effectively grasp and use information for improving the quality of their health (WHO,2010)³. Furthermore, the United States Department of Health and Human Services (HHS,2010) emphasizes the use of comprehensive assessments rather than relying on patients' capacity to comprehend health information and predicted their health behavior. According to HHS, a patient should have the necessary knowledge to evaluate the relative risks and advantages of health information, interpret testing results, and determine the credibility of health information sources⁴. If self-medication decisions are not founded on proper and credible medical knowledge, the negative outcomes will be detrimental to one's health.

Consequently, engaging in irrational self-medication may lead to unforeseen outcomes arising from inaccurate self-diagnosis, delayed access to suitable treatment, improper dosage administration, prolonged utilization of drugs, interactions with concurrently prescribed medications, inadequate storage conditions, polypharmacy, unnecessary financial expenditures, and ultimately, drug abuse .In high developing countries the usage of self-medication is more due their hectic daily life , less time and due to various reasons. The self- medication is common human behavioral selfcare ⁵.

Some research investigations have identified a correlation between low health literacy and inadequate medication adherence, while others have found no link or even greater medication adherence among people with low health literacy. Given the increased incidence of self-medication in the community and individuals' involvement in drug selection and consumption, it is essential to discover variables influencing the change in behavior required to achieve healthy behavior⁶. People will be able to live long, generally healthy, active lives as a result of this. Many variables may affect a person's decision to self-medicate, including education level, social and familial influences, drug accessibility, and media exposure. The duration and severity of a person's ailment may also impact their decision to use self-medication. Despite the fact that health literacy is critical for medication adherence, the relationship between health literacy and medication adherence remains unclear. Despite the fact that health literacy practices are increasingly encouraged in public health literature, there are few research that investigate the relationships between health literacy and self-medication⁷. This study adds to our understanding of how health literacy affects people's ability to self-medicate or take their prescriptions, which makes it noteworthy and very relevant. Consequently, this study raises public health literacy as one of the most powerful tools for decreasing self-medication, which can significantly lessen the risks attached to it

Methodology:

A quantitative, descriptive, cross-sectional, to determine health-literacy and self-medication behavior among the general population. A validated questionnaire [Single Item Literacy Screener (SILS)] distributed. It is community- based research approach that was used to explore the health literacy and patterns and prevalence of the use of self-medication in a sample of 316 participants selected through multistage sampling method. The study population is the community of West Godavari [Nidadavole, Kovvur, Tanuku]. Morris et al. (2006) created the Single Item Literacy Screener (SILS). Inclusion and exclusion criteria were set and those under 18 years of age, that are incapable of hearing and speaking that have mentally health problems and those who were unwilling to participate were not included in the study. Data was analyzed using SPSS 29.0 version.

The single site health literacy screener

1. How confident are you in understanding medical information?
2. How often do you feel overwhelmed by health-related information?
3. Do you feel comfortable filling out medical forms by yourself?

4. How often do you have trouble following medical instructions due to confusion?
5. Are you able to judge the reliability of health information from different sources?
6. How often do you seek help to understand written health information?
7. Can you explain your medical condition and treatment plan in your own words?
- 8.. How comfortable are you asking your healthcare provider questions about your health?

The prior question was evaluated using a five-point Likert scale item response: (5 = never; 4 = seldom; 3 = occasionally; 2 = frequently; 1 = always).

Scores of 1, 2, or 3 indicate that the patient has difficulty reading health content. In this study, scores of 1, 2, or 3 were classified as inadequate health literacy. Eight direct questions were designed to obtain information about self-medication behavior from participants.

Results & Discussion:

Table1: Frequency distribution of demographic characteristics of the sample

Variable	CATEGORY	FREQUENCY
AGE	18- 29	88 [28%]
	30-39	99 [31%]
	40-49	69 [22%]
	<50	60 [19%]
Gender	MALE	114 [36%]
	FEMALE	202 [64%]
EDUCATION	ILLITERATE	28 [9%]
	SCHOOLING	44 [14%]
	DIPOLMA	47 [15%]
	GRADUATE	86 [27%]
	POST GRADUATE	111 [35%]
EMPLOYMENT	UNEMPLOYED	57 [18%]
	EMPLOYED	180 [59%]
	RETIRED	73 [23%]
Smoking	YES	83 [26%]
	NO	233 [74%]
Alcohol Consumption	YES	92 [29%]
	NO	224 [71%]

A total of 316 Individuals majority of participants in this study were females (n = 202, 64). The 31% [n=99] are age of 30 – 39 years. In these the 27% and 35% graduates and post graduates are participated in these study and 73% are non-smokers, 23% are involved in alcohol consumption.

Discussion:

Table 2 Relationship between self-medication and demographics

VARIABLE	CATEGORY	SELF MEDICATION	
		Yes	No
AGE	18- 29 Years	84[95%]	4 [5%]
	30-39 Years	76[77%]	23[23%]
	40-49 Years	48[70%]	21[30%]
	<50	34 [57%]	26 [43%]
GENDER	MALE	80[70%]	34 [30%]
	FEMALE	156 [77%]	46 [23%]
EDUCATION	ILLITERATE	23 [91%]	5 [9%]
	SCHOOLING	38[86%]	6 [14%]
	DIPOLMA	39 [82%]	8 [18%]
	GRADUATE	58 [67%]	28 [33%]
	POSTGRADUATE	38 [34%]	73[66%]
	UNEMPLOYED	49[86%]	8 [14%]

EMPOLYMENT	EMPOLYED	166[92%]	14 [8%]
	RETIRED	61[84%]	12[16%]
SMOKING	YES	74[89%]	9[11%]
	NO	172[74%]	61[26%]
ALCOHOL CONSUMPTION	YES	86[94%]	9[6%]
	NO	186[83%]	38[17%]

In this research study, a comprehensive analysis of self-medication practices among different age groups and demographics was conducted. Notably, individuals aged 18-29 exhibit a 95% prevalence of engaging in self-medication. This behavior is attributed to the accessibility of information through online sources, including brochures and various social media platforms, as well as recommendations from friends and family. Contrastingly, respondents above 50 years old demonstrate a lower self-medication prevalence of 57%. This diminished rate can be linked to their increased interaction with healthcare centers, frequent visits to physicians, and a higher likelihood of having comorbidities, leading to a more cautious approach to self-medication. Among females, a noteworthy 77% are involved in self-medication practices. Education levels also play a significant role, with illiterate individuals (91%) and those at the schooling level (86%) exhibiting a higher tendency towards self-medication. This inclination is attributed to their limited medical knowledge and lower health literacy. Moreover, individuals who smoke (89%) are inclined to self-medicate, primarily due to the respiratory issues associated with frequent smoking, such as cough and irritation. Similarly, in the context of alcohol consumption, a substantial 94% of individuals resort to self-medication to alleviate post-consumption effects like headaches, stomachaches, and vomiting. These findings underscore the importance of targeted interventions and educational initiatives to address self-medication practices, particularly among vulnerable demographic groups, and promote responsible healthcare behaviors.

Table 3: Reasons of the respondents for the use of self-medication

REASONS FOR SELF MEDICATION	FREQUENCY	PERCENTAGE
Aliment is minor	70	22%
Clinic is far from home	5	1.5%
Saves time	2	0.9%
Less cost	7	2.1%
I have the old prescription	6	2%
Long waiting time at the healthcare facilities	5	1.5%
Pharmacist advised me	19	6%
Previous experience of illness	19	6%
Suggestion from friends and family	73	23%
I have the medicine at home	63	20%
Drug or pharmacy store is near	44	14%
It was emergency	3	1%

This research delves into the multifaceted reasons behind the prevalence of self-medication, shedding light on the diverse factors contributing to this phenomenon. A survey conducted among a sample population reveals that 23% engage in self-medication based on recommendations from friends and family, while 22% perceive their ailments as minor, prompting self-administration. Notably, 20% resort to self-medication due to the availability of previously purchased medicines at home. Furthermore, 14% cite proximity to a drug or pharmacy store as a key motivator for self-medication. An additional 6% leverage their past experiences with illness, and a similar percentage follows the advice of pharmacists in self-administering medications. Intriguingly, 0.9% adopt self-medication practices as a time-saving strategy, and 1.5% utilize this approach to circumvent long waiting times at healthcare facilities. In a nuanced exploration, 2% of respondents admit to engaging in self-medication simply because they possess self-prescribed medications. This study provides

valuable insights into the complex web of factors influencing self-medication practices, contributing to a more comprehensive understanding of healthcare behaviors in the community.

Table 4: Relationship between health literacy and demographics

VARIABLE	CATEGORY	HEALTH LITERACY	
		Adequate rate [%]	Inadequate rate [%]
AGE	18- 29 Years	39[44%]	49[56%]
	30-39 Years	49 [49%]	50[51%]
	40-49 Years	50[72%]	19[28%]
	<50 Years	41[68%]	19 [32%]
GENDER	MALE	58[51%]	56[41%]
	FEMALE	123[61%]	79[31%]
EDUCATION	ILLITERATE	16[58%]	12[42%]
	SCHOOLING	19[43%]	25[57%]
	DIPOLMA	26[56%]	21[44%]
	GRADUATE	56[65%]	30 [35%]
	POST GRADUATE	77[69%]	34[31%]
EMPOLYMENT	UNEMPOLYED	25[43%]	32[57%]
	EMPOLYED	135[73%]	51[27%]
	RETIRED	30[41%]	43[59%]
SMOKING	YES	19[23%]	64[77%]
	NO	196[84%]	37[16%]
ALCOHOL CONSMPTION	YES	20[22%]	72[78%]
	NO	193[86%]	31[14%]

The study examines health literacy across various demographic groups, revealing noteworthy disparities. In the age bracket of 40-49, 72% exhibit adequate health literacy, contrasting sharply with the 49% observed in the 18-29 age group. Gender differences are evident, with females demonstrating a 61% rate of adequate health literacy. Educational attainment plays a significant role, with graduates registering a 65% rate and postgraduates exhibiting even higher at 69%, while individuals with only a schooling background display lower health literacy at 43%. Employment status emerges as a crucial factor, as the employed exhibit a notable 73% rate of adequate health literacy. Smoking habits impact health literacy, with smokers lagging significantly at 23%, in stark contrast to nonsmokers who boast an impressive 84% rate of adequate health literacy. Alcohol consumption is also associated with health literacy, as individuals engaged in such behavior demonstrate a lower rate at 22%. These findings underscore the importance of considering age, gender, education, employment, and lifestyle factors when evaluating health literacy levels. The data suggests a need for targeted interventions, especially among younger age groups, males, lower educational strata, and individuals with specific health risk behaviors. This research contributes valuable insights to the broader discourse on health literacy, informing strategies for tailored public health initiatives aimed at improving overall health awareness and understanding within diverse populations.

Conclusion:

This study presents a critical analysis of health literacy and its association with self-medication practices in a diverse population. The findings reveal that 53.4% of the studied population exhibited adequate health literacy, while a substantial 74% reported engaging in self-medication. This data contributes significantly to the growing body of evidence linking insufficient health literacy levels to improper self-medication behaviors. Notably, these correlations were identified across a broad spectrum of patients, offering valuable insights into the role of health literacy in comprehending and applying health information for the enhancement and maintenance of well-being.

Participants with lower health literacy were observed to be more prone to engaging in inappropriate self-medication practices, including non-adherence to drug instructions, the selection of incorrect medications, and the consumption of excessive or insufficient doses without consulting healthcare professionals. This research underscores the importance of addressing health literacy as a pivotal factor in promoting responsible self-medication practices and highlights the need for targeted interventions to enhance health literacy across diverse demographics, ultimately fostering better health outcomes within communities.

ACKNOWLEDGEMENT:

The authors would also like to express their gratitude to Dr. K. Ravi Shankar, Principal of Aditya College of Pharmacy and Dr. D. Sathis Kumar, Principal of Aditya Pharmacy College in Surampalem, Andhra Pradesh, for providing invaluable assistance and blessings for conducting this study.

COMPETING INTERESTS:

The authors declare that they have no competing interests.

References:

1. Suhaib M Muflih, Hadeel N Bashir, Yousef S Khader, Reema A Karasneh, The impact of health literacy on self-medication: a cross-sectional outpatient study, *Journal of Public Health*, Volume 44, Issue 1, March 2022, Pages 84–91,
2. Lee YM, Manzoor BS, Cavallari LH et al. Facilitators and barriers to the adoption of pharmacogenetic testing in an inner-city population. *Pharmacotherapy* 2018;38(2):205–16
3. Patel HN, Ursan ID, Zueger PM et al. Stakeholder views on pharmacogenomic testing. *Pharmacotherapy* 2014; Hughes CM, McElnay JC, Fleming GF. Benefits and risks of self - medication. *Drug Saf* 2001;24(14):1027–37
4. Ruiz ME. Risks of self-medication practices. *Curr Drug Saf* 2010;5(4):315–23.
5. Morren M, Rijken M, Baanders AN et al. Perceived genetic knowledge, attitudes towards genetic testing, and the relationship between these among patients with a chronic disease. *Patient Educ Couns* 2007;65(2):197–204.
6. Hawkins, M., Gill, S.D., Batterham, R. *et al.* The Health Literacy Questionnaire (HLQ) at the patient-clinician interface: a qualitative study of what patients and clinicians mean by their HLQ scores. *BMC Health Serv Res* 17, 309 (2017).
7. Morris, N.S., MacLean, C.D., Chew, L.D. *et al.* The Single Item Literacy Screener: Evaluation of a brief instrument to identify limited reading ability. *BMC Fam Pract* 7, 21 (2006).
8. Muflih, Suhaib M., et al. "The impact of health literacy on self-medication: A cross-sectional outpatient study." *Journal of Public Health* 44.1 (2022): 84-91.
9. Weiss BD, Reed RL, Kligman EW. Literacy skills and communication methods of low-income older persons. *Patient Educ Couns* 1995;25(2):109–19.
10. Kamran, Aziz, et al. "Associations between self-medication, health literacy, and self-
11. perceived health status: A community-based study." *International journal of preventive medicine* 6 (2015).
12. Lee, Chun-Hsien, et al. "Inappropriate self-medication among adolescents and its association with lower medication literacy and substance use." *PloS one* 12.12 (2017): e0189199.
13. Mousaiepour, Somayeh, Ali Ansari Jaberi, and Tayebeh Negahban Bonabi. "The association between health literacy and self-medication behaviors among women referred to comprehensive health care centers in Sirjan, Iran, in 2017." *Journal of Occupational Health and Epidemiology* 7.2 (2018): 103-111.
14. Bailey, Stacy C., Christine U. Oramasionwu, and Michael S. Wolf. "Rethinking adherence: a health literacy–informed model of medication self-management." *Journal of health communication* 18.sup1 (2013): 20-30.
15. Alqarni, Aidah Sanad, et al. "Relationship between the Health Literacy and Self-Medication Behavior of Primary Health Care Clientele in the Hail Region, Saudi Arabia: Implications for Public Health." *European Journal of Investigation in Health, Psychology and Education* 13.6 (2023): 1043-1057.
16. Abosedo, O. A. "Self-medication: an important aspect of primary health care." *Social science & medicine* 19.7 (1984): 699-703 Paasche-Orlow MK, Parker RM, Gazmararian JA et al. The prevalence of limited health literacy. *J Gen Intern Med* 2005;20(2):175–84.
17. ALBashtawy M, Batiha A-M, Tawalbeh L et al. Self-medication among school students. *J Sch Nurs* 2015;31(2):110–6.
18. Shehadeh M, Suaifan G, Darwish RM et al. Knowledge, attitudes and behavior regarding antibiotics use and misuse among adults in the community of Jordan. A pilot study. *Saudi Pharm J* 2012;20(2): 125–33.
19. Carrasco-Garrido P, Jiménez-García R, Barrera VH et al. Predictive factors of self-medicated drug use among the Spanish adult population. *Pharmacoepidemiol Drug Saf* 2008;17(2):193–9
20. Shaamekhi HR, Jafarabadi MA, Alizadeh M. Demographic determinants of self-medication in the population covered by health centers in Tabriz. *Health Promot Perspect* 2019;9(3):181.

21. Kutner M, Greenberg E, Jin Y et al. The health literacy of America's adults: results from the 2003 National Assessment of Adult Literacy. NCEES 2006-483. National Center for education. 2006.
22. Almaleh R, Helmy Y, Farhat E et al. Assessment of health literacy among outpatient clinics attendees at Ain Shams University hospitals, Egypt: a cross-sectional study. *Public Health* 2017;151:13745
23. Schillinger D, Grumbach K, Piette J et al. Association of health literacy with diabetes outcomes. *JAMA* 2002;288(4):475–82.
24. Sørensen K, Pelikan JM, Röthlin F et al. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *Eur J Public Health* 2015;25(6):1053–8.