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The Influence of Education on Knowledge about Corticosteroid Use at Pharmacy X in Bekasi Regency

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ABSTRAK

Kortikosteroid merupakan salah satu obat yang sering digunakan oleh masyarakat umum. Obat ini sangat populer karena dapat memiliki efek menekan gejala dari suatu penyakit, dalam menggunakan obat kortikosteroid yang sangat penting yaitu memahami tingkat pengetahuan masyarakat terhadap keamanan, efek samping serta kontraindikasi. Namun penggunaan jangka panjang atau dosis yang tidak tepat dapat menimbulkan efek samping yang tidak diinginkan, maka bisa dilakukan edukasi tentang obat kortikosteroid. Penelitian ini bertujuan untuk mengidentifikasi sosiodemografi pasien, menganalisis tingkat pengetahuan sebelum dan sesudah edukasi, menganalisis pengaruh tentang obat kortikosteroid di Apotek X Kabupaten Bekasi. Metode penelitian menggunakan jenis penelitian Quasi-Eksperimental, dengan jumlah sample 171 orang, menggunakan kuisioner pengetahuan obat kortikosteroifd dengan 10 pertanyaan yang didapatkan dari jurnal penelitian, dianalisis menggunakan uji normalitas dan uji Wilcoxon. Data sosiodemografi responden tertinggi pada usia 27-35 tahun (42,1%), Perempuan (52,6%), berpendidikan SMA/Sesedajat (99%), pegawai swasta/negeri (128%), pendapatan >2,5.000.000 – 3.500.000 (40,4%), tidak ada penyakit penyerta (59,1%). Hasil tingkat pengetahuan kurang saat pretest dan baik pada saat posttest. dan hasil pengaruh edukasi terhadap tingkat pengetahuan tentang obat kortikosteroid dengan nilai p value 0,001% maka didapatkan kesimpulan bahwa terdapat pengaruh edukasi obat kortikosteroid menggunakan media leaflet terhadap tingkat pengetahuan penggunaan obat kortikosteroid.

Kata Kunci: Pendidikan; Kortikosteroid; Tingkat Pengetahuan

ABSTRACT

Corticosteroids are a common drug used by the general public. They are very popular because they can suppress the symptoms of a disease. Understanding the public's level of knowledge regarding safety, side effects, and contraindications is crucial when using corticosteroids. However, long-term use or inappropriate dosage can cause unwanted side effects, which is why education about corticosteroids is crucial. To identify patient sociodemographics, analyze knowledge levels before and after education, and analyze the impact of corticosteroids on patients at Pharmacy X in Bekasi Regency. This was a quasi-experimental study with a sample size of 171 people. A 10-question corticosteroid knowledge questionnaire was used, obtained from research journals. The questionnaire was analyzed using normality tests and the Wilcoxon test. The highest sociodemographic data for respondents was 27-35 years old (42.1%), female (52.6%), high school education/equivalent (99%), private/state employees (128%), income >2,500,000 – 3,500,000 (40.4%), and no comorbidities (59.1%). The level of knowledge was poor in the pretest and good in the posttest. The results of the effect of education on the level of knowledge about corticosteroid drugs with a p-value of 0.001% indicate that there is an effect of education on corticosteroid drug use using leaflets on the level of knowledge about corticosteroid drug use.

***Keyword*:** *Education; Corticosteroids; Knowledge Level*

1. Introduction

Corticosteroids are a type of natural hormone produced in the body (Endogenous) and synthesized from the adrenal glands in the kidneys, in the body corticosteroids can affect the metabolic system of fats, proteins, and carbohydrates of the cardiovascular system, nervous system, muscles, bones, kidneys and also seen in hormones that have a very important role for the physiological system of the human body to be able to defend itself from environmental changes, corticosteroids are included in the class of hard drugs that should not be purchased without a doctor's prescription, improper use of corticosteroids can cause dangerous effects. Therefore, the level of public knowledge about the impact of irrational steroid use must be good, when deciding to use corticosteroid drugs it is very important to understand the level of safety, side effects and contraindications, of course by consulting a doctor or pharmacist (Budiawan et al., 2023) The use of corticosteroids is even used inappropriately, improper and rational use can cause drug problems such as not achieving the desired therapeutic effect (Ministry of Health, 2023).

Despite their significant therapeutic effects, improper misuse can cause side effects. These include osteoporosis, skin atrophy, diabetes, obesity, glaucoma, cataracts, avascular necrosis and infection, growth retardation, hypertension, and impaired wound healing. Corticosteroid abuse is often perpetrated by the same individual over a prolonged period (Imran, 2020).

Corticosteroid abuse can be reduced by providing education about corticosteroids. Previous research conducted in the Manjakan District of Pekanbaru found that providing self-medication education using leaflets significantly impacted community knowledge (Muharni et al., 2019). Based on research data from Kumala and Widianingtyas (2018), an evaluation of corticosteroid use at the HS 23 Pharmacy in Yogyakarta showed that patient knowledge was still relatively low, and corticosteroid use among patients at the HS 23 Pharmacy was relatively high, with 66.25% of the 80 patients sampled having previously consumed corticosteroids. This low level of patient knowledge was due to a lack of information from healthcare professionals, resulting in patients being unaware of the side effects of corticosteroids.

The above description indicates that educational efforts demonstrate the need to improve patientknowledge regarding self-medication to reduce errors in treatment management, through educational provision.This study aimed to analyze the effect of education on the level of knowledge regarding corticosteroid use among people visiting Pharmacy X in Bekasi Regency. The study is expected to increase knowledge about corticosteroids, thereby improving patients' quality of life.

The general objective of the research conducted was to find out whether there is an influence of education on the level of knowledge of the use of corticosteroid drugs at Pharmacy X, Bekasi Regency. The specific objectives of this research are to identify the sociodemographic characteristics of respondents at Pharmacy X, Bekasi Regency. Analyze the level of knowledge of respondents before and after education at Pharmacy X, Bekasi Regency. Analyze the influence of education on the level of knowledge about corticosteroid drugs at Pharmacy X, Bekasi Regency.

2. Research Methods

This study uses a Quasi-Experimental research type, namely with a one group pretest and posttest design, namely the pretest and posttest design in one group. Education is provided using leaflets made by researchers based on the leaflet "level of knowledge of corticosteroid drugs". The population used in this study were patients at Pharmacy X, Bekasi Regency with a total of 300 patients per month, and the sample selected for this study was 171 patients with inclusion criteria in this study, namely patients aged 18-64 years, respondents who purchased corticosteroid drugs and exclusion criteria in this study were patients who refused to be respondents and filled out incomplete or unclear questionnaires. This research was conducted in March - May 2024.

The instrument used in this study was a closed questionnaire that was structured to be filled out by the research subjects in order to measure knowledge and a statement of willingness to be respondents, and an increase in respondents' knowledge was carried out before and after education was provided regarding

the level of knowledge of corticosteroid drugs by analyzing using SPSS version 29. The data collection technique in this study to measure the level of knowledge of the research subjects was given before and after education with 10 questions about corticosteroid drugs in the following manner:

1. Prepare a questionnaire and educational materials about corticosteroid drugs to be completed and read.
2. Record the questionnaires from respondents before and after the education. The same questionnaire is scored 1 for correct answers and 0 for incorrect answers.
3. Do the same for other respondents, then collect the questionnaire data into one.
4. Data processing and analysis.

Once the data is collected, it is processed and analyzed according to the objectives and scale of the variables being analyzed. Knowledge measurement techniques can be conducted through interviews that ask research subjects or respondents about the content of the material to be measured. According to Arikunto (2006), the depth of knowledge we want to measure can be adjusted to the following levels: (A. Wawan and Dewi, 2019).

a. Good knowledge level if the score is 76% - 100%
b. Adequate knowledge level if the score is 56% - 75%
c. Poor knowledge level if the score is <56%

Comparative measurements before and after education using the Wilcoxon rank test to determine whether there are changes or not after education about corticosteroid drugs.

3. Result and Discussion

3.1. Respondent Characteristics

Based on **table 1** above, data can be seen about the characteristics of respondents, which include age, gender, education, occupation, family income, and medical history. Based on these data, the highest number of respondents was 27-35 years old (42.1%), the majority of females (52.6%), high school/equivalent education (57.9%), highest occupation was employee (state/private) (74.9%), family income >2,500,000 (40.4%), and the majority of respondents had no medical history (59.1%).

Research on the influence of education on the level of knowledge of the use of corticosteroid drugs at Pharmacy X, Bekasi Regency in March - May 2024 with 171 patients as respondents using a questionnaire as a data collection tool. The questionnaire included respondent data including name, age, gender, education, occupation, family income, medical history. Based on the data obtained by the researcher. Based on Table 1, it shows that the highest number of respondents was aged 27-35 years with 72 respondents (42.1%) and the lowest number was 45 - 53 years with 13 respondents (7.6%). This study is in line with research conducted by (Kurniawan & Yunafri, 2023) that the majority of respondents were aged 26-35 years with a percentage of 50%, which means that the use of corticosteroid drugs is mostly used by adults. Adults are categorized as productive age because at that age many people are still actively doing various jobs and other activities. The activities carried out by a person's immune system in the body can decrease, making it more susceptible to disease. These conditions require various types of medications to be consumed. Corticosteroids are among the most commonly used medications, obtained both through prescription and over-the-counter medications.

Based on **Table 1**, the highest number of respondents were female, with 90 respondents (52.6%), and the lowest number of males, with 81 respondents (47.4%) at Pharmacy X in Bekasi Regency who used corticosteroid drugs. This is in line with research (Puspandini et al. 2019) which found that the majority of respondents were female, with 58 respondents (59%). The reason for the majority of respondents being female was because women were more numerous.

Table 1. Characteristics of Respondents at Pharmacy X, Bekasi Regency

Karakteristik Responden	Frekuensi (n = 171)	Persentase (%)
Age (Years)		
18 – 26	42	24,6
27 – 35	72	42,1
36 – 44	29	17,0
45 – 53	13	7,6
54 – 64	15	8,8
Gender		
Male	81	47,4
Female	90	52,6
Education		
Elementary School	8	4,7
Junior High School	32	18,7
Senior High School	99	57,9
College	32	18,7
Occupation		
Housewife	33	19,3
Employee (Civil/Private Sector)	128	74,9
Farmer	3	1,8
Livestock Farmer	3	1,8
Medical Worker	4	2,3
Family Income		
<1,5jt	6	3,5
>1,5jt	32	18,7
>2,5jt	69	40,4
>3,5jt	64	37,4
Disease History		
Asthma	4	2,3
Diabetes	5	2,9
Hypertensio	19	11,1
Heartburn	1	6
Indigestion	41	24,0
There isn't any	101	59,1

Using corticosteroids is common because women's adrenal glands produce more steroid hormones than men's. This is why women experience inflammation more frequently.

Based on **Table 1**, the highest education frequency was high school/equivalent, with 99 respondents (57.9%), then the lowest number was elementary school, with 8 respondents (4.7%). Based on data obtained from the Central Statistics Agency (BPS), the census data on high school education in West Java province experienced an increase from 2020-2022, in 2020 there were 1,648, in 2021 there were 1,667, in 2022 there were 1,711, and in 2023 there were 1,768 (BPS, 2023). This is in line with research (Lintang, 2020) where the majority of respondents were high school graduates (50.0%), high school level is the level of education that is capable of seeking information about something, because the education a person has is related to a person's knowledge.

Based on **Table 1**, the highest frequency of work is as a private/civil servant with 128 respondents (74.9%), and the lowest is farmers and livestock breeders with 3 respondents (1.8%). This is in line with research conducted (Sovia et al., 2023) that work is one of the factors that can trigger the emergence of joint disease, even activities carried out for a long time and repeatedly can burden the joints,

especially the knee joints, which can increase the risk of rheumatoid arthritis, so that the pain conditions due to activity allow them to seek treatment by self-medication.

Based on **Table 1**, the highest frequency of family income is >2,500,000 – 3,500,000 with 69 respondents (40.4%) and the lowest is <1,500,000 with 6 respondents (3.5%). This is in line with research (Riyanti et al., 2019) the results of the analysis concluded that a significant influence of family income on non-compliance of patients with treatment, low-income patients, in addition to income to meet basic daily needs, they still have to pay transportation costs for treatment at the health center, this causes patients not to visit health facilities, the patient's socioeconomic factors play a role as a risk factor for the patient's low willingness to seek health services because their average income is still low from income, on the other hand socioeconomics influences financing in the health sector because it is still focused on basic needs.

3.2. Preliminary Screening of Respondents

Based on **Table 2**, the highest number of respondents obtained information on corticosteroid drugs was from friends with 59 respondents (34.5%) and the lowest number was from health workers with 27 respondents (15.8%). Based on research (Siregar & Darmawan, 2023) Regarding the reasons for deciding to use drugs, the lack of public knowledge regarding regulations, types and classes of drugs in Indonesia is one of the reasons for the sale and purchase of hard drugs without a doctor's prescription in pharmacies and also the public is only oriented towards the benefits of the drugs they buy without knowing or considering the negative impacts that may arise from using hard drugs, also then exacerbated by the tendency of consumers who want to get drugs instantly so they do not consider the possibility of symptoms or side effects caused by using hard drugs. Not only that, the cheap price and easy access to get the drug in pharmacies are the reasons consumers buy these hard drugs even without a doctor's prescription.

Table 2 Preliminary Screening of Respondents at Pharmacy X, Bekasi Regency

Screening Introduction	Frequency (n = 171)	Percentage (%)
Obtaining information on corticosteroid drugs		
Family	48	28,1
Friend	59	34,5
Health workers	27	15,8
Others	37	21,6
If treatment still doesn't work		
Take supplement/vitamin	58	33,9
Go to the doctor/rs	113	66,1
Purchasing drug use		
Recipe	13	7,6
Non Recipe	158	92,4
It side effect occur		
Mengganti obat	34	19,9
Go to doctor	81	47,4
Stop immediately	56	32,7
Purchased corticosteroid drugs		
Betametasone 0,1%	5	2,9
Dexametasone 0,5%	42	24,6
Dexametasone 0,75%	46	26,9
Methylprednisole 4mg	53	31,0
Methylprednisole 8mg	17	9,9
Triamcinolone 4mg	8	4,7

Based on **Table 2**, if this treatment still does not cure the majority of respondents go to the doctor/hospital with 113 respondents (66.1%) based on research (Muslikah & Susilowati, 2019) while

when respondents do not recover, the most common action they take is going to the hospital/doctor as many as 77 respondents, this shows that respondents are very concerned about their health.

Based on **Table 2**, the highest purchase of corticosteroid drugs was non-prescription with 158 respondents (92.4%). Based on research (Budiawan et al., 2023) concluded that respondents who purchased drugs without a prescription or without checking with a doctor reached 94% of respondents who did not pay attention to the side effects of the drug reached 57.3%. This figure is quite large and is feared to have a negative impact on public health conditions related to errors in drug consumption due to public knowledge that is lacking in understanding, therefore education is provided to increase public knowledge regarding the impact of irrational use of corticosteroid drugs.

Based on **Table 2**, the most frequently purchased corticosteroid drug is methylprednisolone 4 mg (31.0%). In line with research (Ningsih, 2019), the most commonly used type of corticosteroid drug is methylprednisolone (55%). Excessive use of corticosteroids can increase misuse or inappropriate indications, dosages, and duration of administration, which can lead to side effects. Poor patients are also more likely to receive corticosteroids such as methylprednisolone and dexamethasone because methylprednisolone is short-acting, resulting in fewer side effects than other corticosteroids. Dexamethasone is rarely prescribed because it has a long-acting effect and can cause serious side effects such as hypokalemia, diabetes mellitus, hypertension, glaucoma, gastrointestinal disorders, and seizures (Nur et al., 2022).

Based on **Table 2**, the results of the study showed that 41 respondents (24.0%) had comorbidities with gastric ulcers, 19 respondents (11.1%), 5 respondents (2.9%) had hypertension, 4 respondents (2.3%) had diabetes, and 1 respondent (6%) had heart disease. According to research (Yuniarti et al., 2020), the cause of gastritis is the consumption of chemical drugs such as acetaminophen, aspirin, and corticosteroids, which can irritate the gastric mucosa. Nonsteroidal anti-inflammatory drugs (NSAIDs) and corticosteroids inhibit prostaglandin synthesis, increasing HCL secretion and causing the stomach to become very acidic. This acidic condition can cause irritation of the gastric mucosa.

3.3. Results of Knowledge Level Regarding Corticosteroid Drugs

Respondents' knowledge levels were measured by having them complete a provided questionnaire. This was done twice: a pretest and a posttest.

Tabel 3 Level of Knowledge of Corticosteroid Drugs at Pharmacy X in Bekasi Regency

	Pretest		***Posttest***	
Category Knowledge	**Amount (n = 171)**	**Percentage (%)**	**Amount (n = 171)**	**Percentage (%)**
Good	2	1,2%	161	94,2%
Enough	13	7,6%	7	4,1%
Not enough	156	91,2%	3	1,8%

Based on **Table 3**, the distribution of respondents based on their level of knowledge regarding the use of corticosteroid drugs was as follows: the highest pretest was in the poor category with 156 respondents (91.2%), the lowest was in the good category with 2 respondents (1.2%). The highest posttest was in the good category with 161 respondents (94.2%), and the lowest was in the poor category with 3 respondents (1.8%). Based on the results of the study, there was an increase in the percentage of respondents with a good influence, the distance between the pretest and posttest was 1.2% with 94.2%. This means that there was an influence of the education conducted by the researcher using leaflets. Therefore, it can be said that the respondents' knowledge before the education with leaflets was in the good category. The level of knowledge, whether poor or good, can be caused by several factors, namely the lack of information provided by health workers. According to the researcher, not all low-educated patients have low scores, some highly educated patients also have low scores. The level of education can be important for faster understanding, for knowledge of corticosteroid drugs, it is not social knowledge that all patients know, but IEC (Communication, Information, and Education) from Pharmacists.

3.4. Hypothesis Testing (Uji Wilcoxon Signed Rank Test)

In **Table 4**, the knowledge level variable shows that 168 respondents experienced a change in their dominant knowledge level towards positive (positive ranks), 1 respondent experienced a decrease (negative ranks) and 1 respondent had the same pretest to posttest score.

Table 4 Test Results *Wilcoxon Signed Rank Test*

Information	Knowledge (n = 171)
Negative Ranks	1
Positive Ranks	168
Ties	1
Assymp.Sig (2 Tailed)	<0,001

Based on **Table 4**, the results of the normality test obtained showed that the pretest and posttest data did not meet the normality requirements because the data were not normally distributed, so the test was continued using a Non-Parametric Test, namely the Wilcoxon Signed Rank Test. The analysis used in this study was an analysis with a non-parametric test, namely the Wilcoxon Signed Rank test. In the knowledge level variable, there were 168 respondents who experienced positive ranks who received education, 1 respondent experienced ties and 1 respondent experienced negative ranks.

Positive ranks (increased scores) occur because respondents already understood the material, so with additional education, they gained a better understanding and improved their scores. Negative ranks (decreased scores) and ties (scores remained the same) occur because respondents forgot, resulting in some respondents' posttest results not showing any improvement in their knowledge.

The pretest and posttest respondents' knowledge variables were analyzed using SPSS to determine whether there was a significant difference between respondents' knowledge before and after education regarding the level of knowledge of corticosteroid drugs. From the normality test, the data were not normally distributed and were continued with the Wilcoxon test. The results obtained were a P value = 0.001% (P <0.005%). Therefore, the decision of the H1 hypothesis was accepted, namely there was a difference in the results of the measurement of corticosteroid drug knowledge before and after education using leaflets. This explains that there is an influence between education and the level of knowledge regarding the side effects of corticosteroid drugs.

Based on data, increased knowledge occurs due to education. According to Notoatmodjo (2020), education is an effort to persuade, persuade, encourage, invite, provide information, and raise awareness through activities called health education or counseling. The impact of this method on changing community behavior will take time. However, if the behavior is successfully adopted by the community, it will be lasting, even for life (Susilawati, R. et al., 2022). Providing education has a significant impact on respondents and is also an effective way to transfer knowledge, thus benefiting others. The education provided in this study focused on the level of knowledge regarding corticosteroid medications. After receiving the education, 171 respondents experienced an increase in knowledge, indicating that If the respondent's knowledge value is good, the respondent's results will also be good. Based on research (Cendekiawan et al., 2023) that there was an increase in respondents' knowledge about corticosteroid drugs before education of 55% and after education of 80% in Ajung Village, Ajung District, Jember Regency.

The results of this study indicate the influence of education on respondents' knowledge, as observed from the increase in respondents' post-test scores after being given education on all indicators. Leaflets are a simple form of health education media, but have been widely used to facilitate the public in receiving health messages. According to (Notoatmodjo, 2012), the benefits of providing leaflets include increasing knowledge, awareness, and skills of patients and families in efforts to maintain and improve health. Research conducted by (Afifah, 2023) found that the level of knowledge on how to obtain medication before education was poor (50%) and after education (83%). There was a significant difference in drug knowledge between the respondent groups before and after education with the help of video media, with an average value (84%) higher than the pretest score of 60%.

4. Conclusions

This study showed that most respondents at Pharmacy X in Bekasi Regency were aged 27–35 years, predominantly female, had a high school level of education, worked as private or state employees, and had no comorbid diseases. The results indicated that the respondents' level of knowledge regarding corticosteroid use was generally low before the educational intervention and improved significantly after the education was provided. Statistical analysis using the Wilcoxon test demonstrated a significant effect of education on the level of knowledge about corticosteroid drug use (p-value = 0.001). Therefore, educational interventions using leaflets are effective in improving patient knowledge regarding the safe use of corticosteroids and can help reduce the risk of inappropriate corticosteroid use in the community.

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