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MEASURING AWARENESS OF OVER THE COUNTER ANALGESICS USE AND RISKS ASSOCIATED WITH IT AMONG JORDANIAN POPULATION IN AMMAN

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ABSTRACT

This is an observational cross-sectional study that examines the awareness of Jordanian consumers regarding the potential risks associated with over-the-counter (OTC) use of paracetamol and non-steroidal anti-inflammatory drugs (NSAIDs) and the effect of family and friends' advice on the use of analgesics, in order to better understand patterns of usage of these products. A questionnaire survey was conducted in Amman (capital). 150 questionnaires were correctly filled then analyzed. The inclusion criteria were Jordanian residents age over18 years and the willingness to participate in the study. The study results showed that the Jordanian population in Amman is familiar with the most important information regarding the risks associated with the use of Analgesics and that they aware of their responsibility of checking medical information before sharing and that is a positive sign.

Keywords: Over the Counter, Analgesics, Awareness, Amman

INTRODUCTION

Actions of analgesics

In the midst of the rising healthcare costs around the world, self medication has become an important option in the management of common conditions. Self medication encourages consumers to take an active role in their health. Self medication also provides positive economical outcomes at the societal level. However, the benefits of such self medication practices depend upon their being used responsibly. [1]Today over-the-counter (OTC) analgesics represent one of the prominent self medication categories. Analgesics are pain-relieving medications normally known as painkillers or pain relievers, are substances which work in various ways to relieve different types of pain experienced in the body. [2] Over-the-counter (OTC) (non-prescribed) analgesics that are generally used by the public are paracetamol, and non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen. [3]

Paracetamol

Paracetamol is (also known as Acetaminophen) is an antipyretic, non-opioid analgesic, and non-steroidal anti-inflammatory drug (NSAID),and is one of most commonly used medications worldwide with non-prescription sales OTC. [4]

Paracetamol is used for mild pain and as an anti-pyretic drug. The mechanism of action of paracetamol is not clearly known, although one theory suggests that it acts as a selective inhibitor of the cyclo-oxygenase enzyme is form, COX-3, found in the brain and spinal cord. Update on its analgesic mechanism of action its analgesic effect was often considered as based on the mobilization of the cyclo-oxygenases and more recently on serotonergic pathways. A new metabolic pathway involving the generation of an active metabolite, AM404 (N-(4-Hydroxyphenyl)-5Z,8Z,11Z,14Z-eicosatetraenamide), in the brain by the fatty acid amide hydrolase (FAAH) enzyme, was recently identified. [5]

Non-steroidal anti-inflammatory drugs

Inhibition of cyclo-oxygenase enzyme-2 (COX-2), which is induced in inflammatory cells, represents the most likely mechanism of action for NSAID-mediated pain relief. However, There is increasing evidence that

NSAIDs exert their effect not only through inhibition of prostaglandin synthesis peripherally, but also have a central mechanism of action that boosts the peripheral mechanism. This effect may be as a result of either the interference with the production of prostaglandins within the central nervous system or the blockade of serotonin release (5-hydroxytryptamine; 5-HT).[6]

Aspirin

The most commonly used over-the-counter NSAID is aspirin (alone or as combination with other compounds). The most common reason for use is the prevention of myocardial infarction or stroke, followed by the relief of all forms of pain.[7]

Ibuprofen

Ibuprofen was developed directly as a result of the side effects associated with the use of corticosteroids in the treatment of rheumatoid arthritis in addition to the gastro-intestinal irritation and general problems of the previously established NSAIDs. Ibuprofen was generally accepted because its therapeutic efficacy was seen to outweigh its side-effects. Ibuprofen was, at the time, the first drug with the potency of aspirin but without its main disadvantages.[8]

Prescription, Dosage and Side effect of Analgesic Medication

Acetaminophen, aspirin, and ibuprofen are among the most frequently used OTC analgesics, When utilized as recommended, these analgesics are relatively effective, safe, and economical medications for mild to moderate pain and fever. Nevertheless, because of OTC analgesics accessibility and presumed safety, they are among the most commonly taken drugs in overdoses.[9]

Although NSAIDs are efficacious and have a wide margin of safety, they have potentially serious side effects even when taken in appropriate manner. The most common side effect is gastrointestinal irritation due to the inhibition of prostaglandin synthesis in the stomach mucosa which can lead to inflammation and ulceration. Most likely because of its little affinity for COX in that environment, Acetaminophen does not cause gastric irritation. Elderly patients are at higher risk of developing GI adverse effects. Thus, close monitoring of the amount of OTC NSAID ingested is necessary in the management of elderly patients. To minimize GI adverse events, proton-pump inhibitors (PPIs) may be useful as prophylaxis for patients who require NSAIDs for therapy and are at risk for increased GI complications.[9,10]

It is not known whether the patterns of use are consistent with good pain management practices. A better understanding of patterns of use is needed to determine if these patterns are consistent with good pain management practices, the extent of the misuse of OTC analgesics, and whether health outcomes could be improved by public education about the appropriate use of these drugs.[11]

Effect of family and friends

Available data clearly suggest that social relationships have the potential for both health improving and health damaging effects in adults, and that there are biological pathways for these effects. Such evidence suggests that different sides of the social environment can play a crucial role in future health promotion efforts for older adults, although careful consideration of the potentially positive as well as negative social effects is needed.[12]

PREVIOUS STUDIE

Self-medication practice (SMP) is the use of medication without the prescription of health care professionals. People may practice self-medication for a variety of reasons, like the urge for self-care, sympathy for family members in sickness, lack of health services, poverty, ignorance, misbelief, and excessive advertisements of drugs.[13]

A study done in India in two phases showed that the prevalence of self-medication practices among students was 74.6% and 69.4%, respectively. Oral antibacterial and anti-inflammatory agents and antipyretics were the most common group of drugs used in both phases of the study.[14] Other study which examined the prevalence of self-medication, on students in Belgrade, Serbia; showed that Self-medication was reported by 79.9% students. The most frequently self-prescribed medications were analgesics (55.4%).[15]

Because of high prevalence of Analgesics usage, several studies was conducted to assess side effects and the awareness regarding its use, for example, "Telephone survey" was developed and evaluates the attitudes of 302 adults toward analgesic use and related side effects. Over half (68%) reported prior experience with 2 or more side effects. Vomiting (34%), confusion (32%), and nausea (17%) were ranked as the worst side effects.[16] Other study in hospitals of Bangladesh which is entitled by "A Survey on Knowledge and attitude about analgesic use and its indication and possible side effects showed that only 27.04 % participants have health science background in education and only 55% patients get information from doctor about side effects.[17] A study about patient knowledge of the paracetamol content of over-the-counter (OTC) analgesics showed that patient knowledge of paracetamol-containing products and of the maximum daily dose is currently insufficient to ensure safe use of the drug.[18]

Other study about Drug safety awareness in New Zealand: public knowledge and preferred sources of information showed that Word of mouth was more frequently reported by women than men as a preferred channel for drug safety information (29% and 14%, respectively). They said that it is useful to hear about other people's experiences of medications.[19]

These studies showed that the prevalence of self-medication is high especially the use of Analgesics and the knowledge about its use and side effects is insufficient, therefore strengthening communities awareness on drug side effects and integrated efforts of individuals, communities, health facilities are highly necessary. Despite the negative consequences of Analgesics usage and its high spread, studies on this study area are limited. Therefore, the aim of this study was to assess the awareness of the Jordanian population in Amman regarding the use of Analgesics, its associated benefits and harms, in order to better understand how consumers are using these products.

Methodology

A cross-sectional observational study was conducted in Amman city the capital of Jordan. The research team developed a questionnaire that aims at assessing different aspects of Jordanian population awareness regarding the risks associated with the use of analgesics. The questionnaire consisted of four dimensions; the first dimension: the awareness regarding the proper use; the second: The trust in information received from others about analgesics; the third: the awareness regarding side effects associated with the use of analgesics; the fourth: awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics. The sampling frame was defined as any resident in Jordan above 18 years old. 150 questionnaires were distributed and re-collected from the subjects of the study after explaining the procedure and aim of the study for them. Finally, all data were entered and analyzed using the SPSS software (version 25.0; SPSS, Inc, Chicago, IL).

Study Model

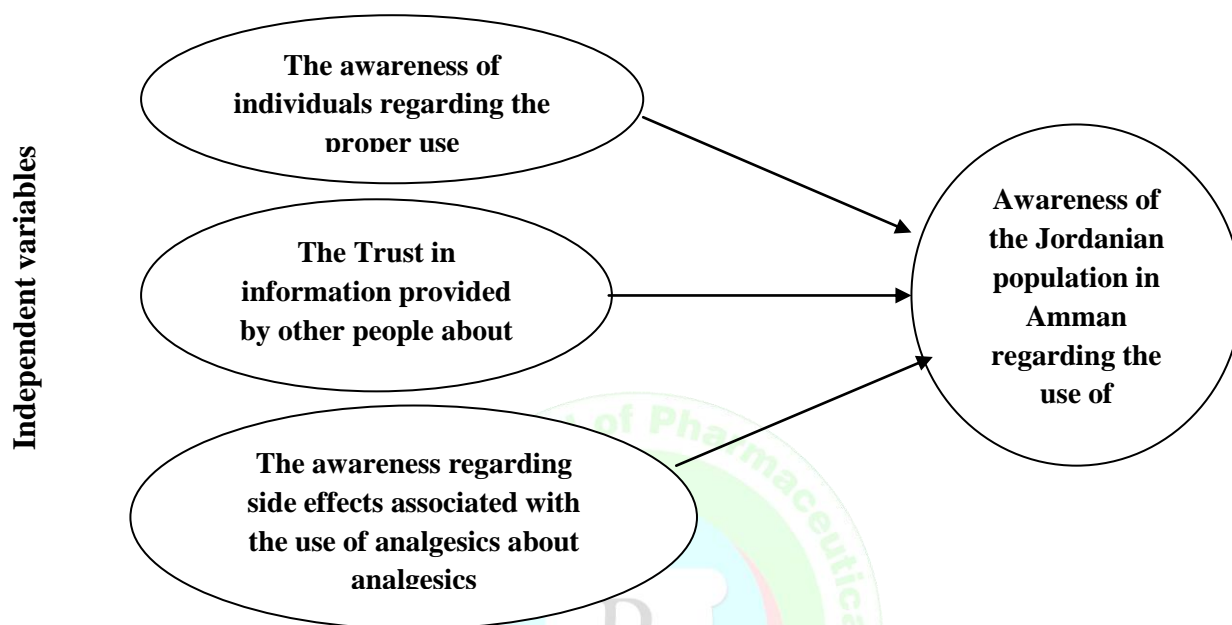The study model design was based on study issues, goals, and similar previous literatures [20-25].

Table 1: Reliability Coefficient

No. Cases	Cronbach's Alpha	No. of Items
150	.767	34

RESULTS

Test of Reliability

A reliability coefficient of (Cron boach's Alpha) 70% or higher is considered "acceptable in most social science research. The result of this test in the current study is 76.6% as table (1)

General results

By using descriptive analysis it was determined that all of the questions are over the midpoint (3) except for the questions (4, 6, 7, 8, 9, 10, 13, and 20) table (2).

Results indicate that, ranked first with an average of (3.773), individuals in Amman, Jordan think that they understand the medical instructions of analgesics. The ranked last, with an average (1.8133), this indicates that the Jordanian individuals in Amman do not have chronic illness that requires daily use of analgesics.

Testing Hypothesis:

The first category:

Test results of the three hypothesis of the study are shown in Table (3), statistical analysis of this table illustrates the overall mean score of respondent which measures the dimensions (D1, D2, D3, and D4) that correspond to the hypothesis. The mean values of these are (H1=2.76444 H2=3.1905, H3=3.2944, H4=3.4422). H2, H3, and H4values are above the scale midpoint (3) with the standard deviation showing small dispersion this mean moreover. These results were further validated by one – sample t-test which revealed that the overall mean difference for these dimensions as a whole was statistically significant (N=0.000) at (Ns=0.05) with height T. Value, (H1=75.148, H2=73.754, H3=55.58, H4=64.049), these scores of the hypothesis (H1, H2, H3, and H4) are bigger than tabular (t=1.96) and sig were (0.000). As a result of, we reject the null hypothesis (People don't have enough awareness about the risks associated with the use of analgesics) and accept the alternative hypothesis according to results shown in the Table (3).

Table 2: Descriptive statistics and one sample t-test

S.NO	QUESTIONS	Mean	Std. Dev	T Value	Sig.
First dimension: The awareness of individuals regarding the proper use					
			1.20	32.13	.000
2	You think you know the right amount of analgesic to use to relieve pain.	3.48	0.98	43.21	.000
3	You think you know the biggest dose of Analgesia.	3.08	1.15	32.80	.000
4	Use More than one type of analgesics to relieve pain at the same time.	2.38	1.24	23.54	.000
5	You use Analgesics without referring to the pharmacist or the physician.	3.407	1.10	37.73	.000
6	You think that analgesics are always safe for the person	2.60	0.92	34.35	.000
7	You think you can use the analgesics on open number of times a day.	2.06	0.98	25.62	.000
8	You think you can never do without analgesics.	2.87	1.06	33.08	.000
9	You have a chronic illness requires you to use daily analgesics.	1.81	1.08	20.39	.000
Second Dimension: The Trust in information provided by other people about analgesics					
10	You think you have enough knowledge of how to use different types of analgesics	2.60	1.12	28.34	.000
11	Sharing information you already know with other people	3.41	1.06	39.09	.000
12	Trust the information that people tell about analgesics	2.42	1.07	27.54	.000
13	Take advice about analgesics from other people	2.90	1.08	32.72	.000
14	Trust your family members regarding the use of analgesics	3.63	1.08	41.08	.000
15	Check the information you have before sharing it with others	3.72	1.09	41.78	.000
16	Check the information you receive from others before you work	3.64	1.116	39.84	.000
Third Dimension: the awareness regarding side effects associated with the use of analgesics					
17	Know what are the side effects of analgesics	3.44	1.06	39.62	.000
18	Know the harm defects of analgesics on your health	3.54	.98708	44.00	.000
19	Know that chronic used of analgesics leads to addiction	3.59	1.13	38.75	.000
20	Know the Drug interactions of analgesics	2.68	1.23	26.70	.000
21	Know the effect of analgesics on pregnancy and lactation	3.15	1.24	31.12	.000
22	Know natural alternatives of analgesics	3.34	1.09	37.46	.000
Fourth Dimension: awareness of the Jordanian population in Amman regarding the use of Analgesics.					
23	understand the medical instructions of analgesics	3.77	0.93	49.42	.000
24	You think that information from other people about analgesics is important for you	3.31	1.03	39.37	.000
25	You think you have knowledge of the side effects of analgesics.	3.24	1.04	37.89	.00

Table 3: Testing Hypothesis

Hypothesis	Mean	Std. Dev	T-value	Sig
H1: There is an effect of the awareness regarding the proper use on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics	2.76	.45	75.14	.000
H2: There is an effect of the Trust in information provided by other people about Analgesics on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics.	3.19	.52	73.75	.000
H3: There is an effect of the Knowledge of side effects of Analgesics on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics.	3.29	.72	55.58	.000
H4: There is awareness between the Jordanian population in Amman regarding the risks associated with the use of analgesics.	3.44	.65	64.04	.000

The Second Category:

It tests the construct of the study model. In order to test the relationship between the constructs of the study model and the dependent dimension (D4), Pearson correlation coefficient was adopted and hypothesis (H4) was developed. There is a relationship between the (the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics and the awareness regarding the proper use, The trust in information received from others about analgesics and the awareness regarding side effects associated with the use of analgesics), results of the analysis of Pearson's coefficient are shown in the table (4)

Table: 4 Correlations

		D4	D1	D2	D3
Pearson Correlation	D4	1.000	.170	.218	.419
	D1	.170	1.000	.409	.203
	D2	.218	.409	1.000	.196
	D3	.419	.203	.196	1.000

Table 4 showed that There were a positive Pearson's correlation between dimension four and each of D1, D2 and D3 and D3 showed strongest positive correlation with D4. So we can conclude that the knowledge in the side effect of Analgesics help in building the awareness of Jordanian population in Amman regarding the risks associated with the use of analgesics.

Table: 5 Model Summary

Model	R	Change Statistics			
		R Square	F	R Square	F
1	.443[a]	.196	11.890	.196	11.890

Table 5 showed that we concluded that multiple linear regression have been proven to be valid, the results were supported by value of (f) which was calculated to be (11.89), which is greater than the F table which was (2.604), the value of the statistical significant (Sig.) which was calculated (0.000) is lower than the significant level of (alpha = 0.05), so we reject the null hypothesis (People don't have enough awareness about the risk associated

with the usage of analgesic) and accept the alternative hypothesis.

Additionally, determinant Coefficient (R Square) which was calculated as (0.196) showed the elements within the model in general and explained (19.5%) of the changes that impact awareness about the risks associated with the use of analgesics. Also the regression showed a positive correlation with R (0.443).
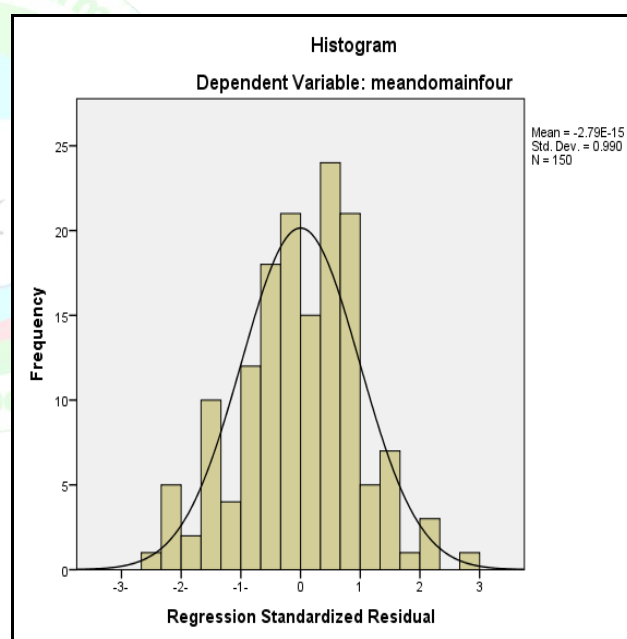
Normal Distribution:

Figure 1: Showed the results of normal distribution values for variable data:

Figure 1 showed that the data presented is adequate to the normal distribution histogram; the skewed distribution is asymmetrical because the natural limit prevents outcomes on one side. The distribution peak is off center towards the limit and a tail starches away from it. Distribution frequency is just above (20); because the results cannot be more than 100 percent pure.

DISCUSSIONS AND CONCLUSIONS

This study seeks to measure the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics. For this purpose a

model of study has been developed, which includes many of factors that have been divided into four dimensions.

- The awareness regarding the proper use, The trust in information received from others about analgesics, The awareness regarding side effects of analgesics, and the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics.
- The analysis of the data was mainly based on conducting "Descriptive statistics" to extract the means and the standard deviations. This was followed by one sample T-test analysis to examine the hypothesis. In order to test the relationship between the constructs of the study model and the dependent dimension (D4), Pearson correlation coefficient was adopted.
- The important results of this study were: the responses of the study's sample to the survey (25 questions), were all positive, except for the questions (4, 6, 7, 8 , 9, 10, 13, 20) as the means for these questions were less than three (midpoint =3) relative to the mean. As for the one sample T-test analysis, all questions exceeded 1.96.

The study results indicated that the Jordanian population in Amman has adequate information regarding the risks associated with the use of Analgesics, as the question twenty three (understand the medical instructions of analgesics.) was ranked first among the questions with an average mean (3.7733) and t-value (49.420).

The members of the sample check the information they have before sharing it with others with an average mean (3.7267) and (41.783) t-value, this indicates that they aware of their responsibility among sharing medical information.

As for the hypothesis of the study, the first hypothesis (There is an effect of the awareness regarding the proper use on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics.) was accepted with a value of one sample T-test analysis of 75.148, which exceeded 1.96 and this indicates that the knowledge about the proper use of analgesics plays an important role in people awareness about the risks associated with analgesics usage, and with a mean of 2.76444 members of the sample admitted that they do not have enough information about the proper use. Therefore, strengthening communities' awareness on analgesics usage and integrated efforts of individuals, communities, and health facilities are highly necessary. The second hypothesis (There is an effect of the Trust in information provided by other people about Analgesics on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics.) was also accepted with a t-value of 73.754, which shows an important role in individuals awareness of analgesics, health facilities should aware population to not share the information unless they are provided by health care team. The third hypothesis (There is an effect of the Knowledge of side effects of Analgesics on the awareness of the Jordanian population in Amman regarding the risks associated with the use of analgesics) was accept with a t-value of 55.580 and showed the strongest correlation and influence in the awareness with pearson's correlation of .419, this indicates that the awareness about side effects of analgesics plays an active and most important role in the awareness of the risks associated with the analgesics usage. The fourth hypothesis with a 64.049 t-value was accepted. As a result we reject the null hypothesis (People don't have enough awareness about the risks associated with the use of analgesics) and accepted the alternative hypothesis. Strengthening communities' awareness on analgesics usage and integrated efforts of individuals, communities, and health facilities are highly necessary to assure and increase the populations' knowledge about analgesics. Further studies on larger sample size have to be done.

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