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KNOWLEDGE AND SELF-REPORTED EFFECTS OF SELF-MEDICATION WITH PAIN RELIEVERS IN OPOKUMA COMMUNITY IN BAYELSA STATE, NIGERIA

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ABSRACT
Non-steroidal anti-inflammatory drugs (NSAIDs) remain the cornerstone of pain management. Most are available as over-the-counter drugs and are associated with varying degrees of adverse effects. This study evaluated the knowledge and self-reported effects of self-medication with pain killers among residents of Opokuma clan of Bayelsa State, Nigeria. 254 questionnaires formulated to retrieve relevant demographic and other drug use data were administered randomly to respondents that consented after carefully explaining the objectives of the study. Data was analysed with SPSS version 20. Majority (61%) of respondents were females; 89.4% were aged 18-45 years; 61% had secondary education; 96.5% were Christian; 43.7% were workers; 65.4% had very adequate knowledge of side-effects of NSAIDs; 53.5% had very good knowledge of the dose of the pain reliever they were taking; 68.5% respectively had no knowledge on whether pain-killers can be taken along with alcohol or on empty stomach; 52.8% and 42.5% respectively had average and no knowledge on the use of pain killers simultaneously with antacids; 44.9% and 39.0% respectively had very good and average knowledge of the use of pain killers with food; about half (48.8%) had average knowledge of how frequently pain killers should be taken; over 90% reported that most pain killers were very effective; all users of Arthocare found it non-effective; reasons adduced for ineffectiveness of pain killers were being adulterated (38.3%), expired (25.8%), due to poor compliance (23.4%) or use of low doses (12.5%); over 80% always or sometimes visited the hospital or community pharmacy whenever they had pains; 83.1% recorded a high level of positive health seeking behavior. Less than 10% of respondents always experienced any form of side-effects; over 50% never experienced any form of side-effects; 46.5% and 40.6% respectively sometimes had heart burns and chest pains; 38.2%, 37.0% and 30.3% sometimes experienced sweating, blood in stool and stomach pains respectively; 29.1% sometimes had body swelling; over 80% always or sometimes reported the side-effects to the doctor, nurse or pharmacist; Gender, marital status, education and occupation were correlated with knowledge of pain killers but age was not. There is a need to upgrade the knowledge of the people in this community on appropriate health-seeking behaviour and rational use of pain-killers in order to avert the looming advent of severe acute and chronic adverse effects relating to NSAIDs use.

KEYWORDS: Pain killers, NSAIDs, Community, Prevalence, Patterns, Nigeria.

INTRODUCTION
Non-steroidal anti-inflammatory drugs (NSAIDs) are widely used to relieve pains, inflammation and fever by inhibiting the production of prostaglandins in the body.

NSAIDs have been the cornerstone of pain management in patients with osteoarthritis and other painful conditions. In the United States an estimated 5% of all visits to a doctor are related to prescriptions of non-steroidal anti-inflammatory drugs and they are among the most commonly used drugs [Dai et al, 2005; Kaufman et al, 2002]. Based on the increasing knowledge of NSAIDs, some are used without prescription, such as ibuprofen, ketoprofen and naproxen and available as over the counter (OTC) medicines. This does not imply that NSAIDs are not associated with adverse effects that are threats to life [Scheiman and Fendrick, 2002]. Some NSAIDs, however, require a prescription before acquisition and use, such as celecoxib, diclofenac, indomethacin and sulindac. The lack of knowledge on NSAIDs may impair their rational use which in turn will affect patient outcomes [Whitten et al 2005].

Self-medication is a widespread practice to treat health problems. Nevertheless, self-medication can be a hazardous practice, especially when it is non-responsible. Potential risks of self-medication practices have been identified to include: incorrect self-diagnosis, delays in

seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease and risk of dependence and abuse [Ruiz, 2010].

The downside to the use of NSAIDs is varied and their widespread use has meant that the prevalence of adverse effects of these drugs has become increased. Direct and indirect irritation of the GIT remains the main adverse drug reactions (ADRs) associated with NSAID use.[Rossi, 2006; Rostom et al 2002]. The common gastrointestinal ADRs are Nausea/Vomiting, Dyspepsia, Gastric ulceration/bleeding and Diarrhea An estimated 10–20% of NSAID patients experience dyspepsia. [Traversa et al, 1995]. NSAIDs aside from aspirin, both newer selective COX-2 inhibitors and traditional anti-inflammatories, increase the risk of myocardial infarction and stroke.[Kearney et al 2006; Trelle et al, 2011]. NSAIDs aside from (low-dose) aspirin are associated with a doubled risk of heart failure in people without a history of cardiac disease [Bhala et al, 2013]. In people with such a history, use of NSAIDs (aside from low-dose aspirin) was associated with a more than 10-fold increase in heart failure [Page and Henry, 2000]. Recently, the FDA toughened warnings of increased heart attack and stroke risk associated with NSAIDs; Aspirin is an NSAID but is not affected by the new warnings [FDA, 2015]. NSAIDs are also associated with a relatively high incidence of renal ADRs. For example, when NSAIDs are used for pain management after surgery they cause increased risk of kidney problems [Lee et al, 2007]. NSAIDs may also cause renal impairment, especially in combination with other nephrotoxic agents. Renal failure is especially a risk if the patient is also concomitantly taking an ACE inhibitor and a diuretic in the so-called "triple whammy" effect.[Thomas, 2000]. Common ADRs associated with altered renal function include: Sodium and fluid retention and Hypertension. In rarer instances NSAIDs may also cause more severe renal conditions: like Interstitial nephritis, nephrotic syndrome, acute renal failure and acute tubular necrosis.[Rossi, 2006]. Furthermore, a variety of allergic or allergic-like NSAID hypersensitivity reactions follow the ingestion of NSAIDs. Other common ADRs include: raised liver enzymes, headache, dizziness [Rossi, 2006]. Uncommon ADRs include: hyperkalaemia, confusion, bronchospasm, rash, rapid and severe swelling of the face and/or body. [Rossi, 2006]. Ibuprofen may also rarely cause irritable bowel syndrome symptoms. NSAIDs are also implicated in some cases of Stevens–Johnson syndrome. NSAIDs may aggravate hypertension (high blood pressure) and thereby antagonize the effect of antihypertensives, such as ACE Inhibitors. [Ogbru, 2008; Shionoiri, 1993]. NSAIDs, like all drugs, may interact with other medications. For example, concurrent use of NSAIDs and quinolones may increase the risk of quinolones' adverse central nervous system effects, including seizure [Bayer HealthCare Pharmaceuticals Inc, 2008; Royal Pharmaceutical Society of Great Britain (2009)].

Healthcare professionals are expected to be abreast of the ADR spectrum of these drugs and to provide appropriate drug information and counseling to their patients to eliminate or reduce adverse drug reactions. In this study we evaluated the knowledge and self-reported effects of self-medication with pain relievers in Opokuma Clan of Bayelsa State, Nigeria.

METHOD

Study population

This study was carried out in Opokuma, a clan in Kolokuma/Opokuma Local Government Area of Bayelsa state, south- south region of Nigeria. The clan is composed of a population of about 10,000.

Study Design and Sample

254 questionnaires were administered randomly to respondents that consented after carefully explaining the objectives of the study. The sample size was calculated using standard formula for evaluating the sample size population [Araoye, 2003]. The questionnaire was designed comprising demographic data, knowledge of and adverse effects experienced with pain relievers and other correlates.

Data Analysis

Information from the question was entered and analyzed using SPSS version 20 spread sheet for descriptive and inferential statistic. A t-test was also conducted using one way ANOVA

RESULTS

Demography

Majority (61%) of respondents were females; 89.4% were aged 18-45 years; about half (49.6%) were married; 61% had secondary education; 43.7% were workers and 96.5% were Christians; 76.8% of the respondent had annual income in the range N100, 000-500,000.

Knowledge of Adverse Effects of Pain Relievers

Regarding the knowledge of pain relievers, 65.4% of respondents had excellent/very good knowledge of the side-effects of the pain relievers they took; 16.1% had no such knowledge at all. See fig 1for details.

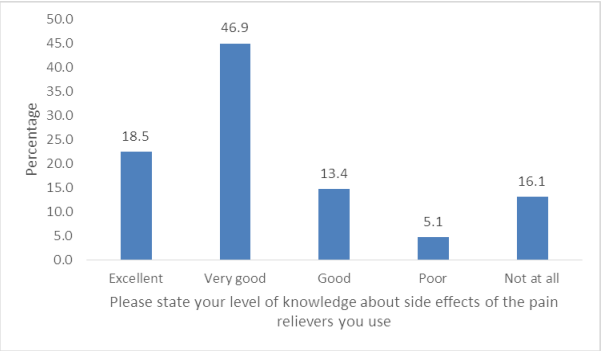

Figure 1: Knowledge of Side-effects of Pain Relievers

Knowledge of rational use of Pain Relievers

Over half (53.5%) of respondents reported that they had very good knowledge of the dose of the pain reliever they were taking; 41.3% had average knowledge of the dose to use; 88.6% and 68.5% respectively had no knowledge on whether pain-killers can be taken along with alcohol or on empty stomach; 52.8% and 42.5% respectively had average and no knowledge on the use of pain killers simultaneously with antacids; 44.9% and 39.0% respectively had very good and average knowledge of the use of pain killers with food; about half (48.8%) had average knowledge of how frequently pain killers should be taken. See Table 1.

Overall, 41.3% of respondents had good knowledge on how to use pain killers.

Table 1: Knowledge of administration of pain-killers (n=254)

Variable	Very good N (%)	Average N (%)	Not at all N (%)
Correct dose to take	136(53.5)	105(41.3)	13(5.1)
How long it should be taken	43(16.9)	203(79.9)	8(3.1)
How frequently you should take it	73(28.7)	124(48.8)	57(22.4)
Whether it can be taken along with alcohol	13(5.1)	16(6.3)	225(88.6)
Whether it can be taken along with food	114(44.9)	99(39.0)	41(16.1)
Whether it can be taken on empty stomach	14(5.5)	66(26.0)	174(68.5)
Whether it can be taken with Antacids	12(4.7)	134(52.8)	108(42.5)

Self-reported effectiveness of pain relievers

Regarding level of effectiveness of pain relievers, majority (over 90%) of respondents reported that diclofenac potassium, lbuprofen, indomethacin, meloxicam mefenamic acid, aspirin, naproxen, piroxicam, chloroquine, allopurinol and acetaminophen were very effective.

All users of Arthocare found it non-effective; 40% and 25% respectively found Arthocare plus very effective and non-effective. All users of Celecoxib found it effective; all users of ketoprofen found it very effective. Over 90% of users of other pain-killers rate them as very effective or effective. See Table 2 for details.

Table 2: Self-reported effectiveness of the pain relievers used

Variable	Very effective N (%)	Effective N (%)	Not effective N (%)	Total N (%)
Diclofenac K (Cataflam)	73(61.9)	45(38.1)	0(0.0)	118(100.0)
Diclofenac Na (Voltaren tab)	33(48.5)	35(51.5)	0(0.0)	68(100.0)
Celecoxib (Celebrex)	0(0.0)	17(100.0)	0(0.0)	179100.0)
Ibuprofen	92(73.6)	33(26.4)	0(0.0)	125(100.0)
Indomethacin	38(53.5)	33(46.5)	0(0.0)	71(100.0)
Ketoprofen	8(100.0)	0(0.0)	0(0.0)	8(100.0)
Magnesium salicylate	23(45.1)	23(45.1)	5(9.8)	51(100.0)
Mefanemic acid	38(55.1)	31(44.9)	0(0.0)	69(100.0)
Meloxicam	29(80.6)	71(9.4)	0(0.0)	36(100.0)
Aspirin	33(67.3)	16(32.7)	0(0.0)	49(100.0)
Naproxen	25(53.2)	22(46.8)	0(0.0)	47(100.0)
Piroxicam	60(83.3)	12(16.7)	0(0.0)	72(100.0)
Flurbiprofen	15(50.0)	15(50.0)	0(0.0)	30(100.0)
Sulindac	10(45.5)	12(54.5)	0(0.0)	22(100.0)
Diclofenac sodium with misoprostol	56(65.9)	29(34.1)	0(0.0)	85(100.0)
Diflunisal	22(44.9)	27(55.1)	0(0.0)	49(100.0)
Chloroquin	64(62.1)	35(34.0)	4(3.9)	103(100.0)
Allopurinal	15(53.6)	13(46.4)	0(0.0)	28(100.0)
Acetaminophen	78(73.6)	28(26.4)	0(0.0)	106(100.0)
Athrogratis	4(22.2)	14(77.8)	0(0.0)	18(100.0)
Arthocare	0(0.0)	0(0.0)	5(100.0)	5(100.0)
Arthocare plus	8(40.0)	7(35.0)	5(25.0)	20(100.0)

Self-reported reasons for non-effectiveness

Respondents claimed the drugs were not effective because they were either adulterated (38.3%), expired (25.8%), due to poor compliance (23.4%) or use of low doses (12.5%)

Health Seeking Behaviour

Regarding health seeking behaviour, over 80% always or sometimes visited the hospital or community pharmacy whenever they had pains; 76.8% and 61.1% always or sometimes went to the church/mosque and massaging homes respectively; 81.5% and 68.1% and 58.3% never visited herbal clinics, street vendors and chemists respectively; 41.7% always or sometimes visited the chemist. Over all, (83.1%) of respondents recorded a high level of positive health seeking behavior. See Table 3.

Self-reported side-effects

Adverse effects reportedly experienced by respondents were heart burns, stomach pains, chest pains, blood in urine & stool, body swelling and sweating. Less than 10% of respondents always experienced any form of side-effects; over 50% never experienced any form of side-effects; 46.5% and 40.6% respectively sometimes had heart burns and chest pains; 38.2%, 37.0% and 30.3% sometimes experienced sweating, blood in stool and stomach pains respectively; 29.1% sometimes had body swelling.

Regarding response to adverse effects, over 80% of respondents always or sometimes reported to the doctor, nurse or pharmacist; over 60% never reported or visited the family, friend, herbal clinic or patent medicine vendor. Overall, 92.1% of respondent had a high-positive attitude towards side effects. See table 3 for details.

Table 3: Health Seeking Behaviour and self-reported side-effects

What do you do when you have pain?			
Variable	**Always N(%)**	**Sometimes N(%)**	**Never N(%)**
Go to the hospital	61(24.0)	149(58.7)	44(17.3)
go to herbal clinic	0(0.0)	47(18.5)	207(81.5)
go to massing homes	7(2.8)	148(58.3)	99(39.0)
go to church/mosque	33(13.0)	162(63.8)	59(23.2)
go to pharmacy	90(35.4)	139(54.7)	25(9.8)
go to chemists	11(4.3)	95(37.4)	148(58.3)
visit street vendors	7(2.8)	74(29.1)	173(68.1)
How often do you experience the following side effects after taking pain killers?			
Heart burns	5(2.0)	118(46.5)	131(51.6)
Stomach pains	4(1.6)	77(30.3)	173(68.1)
Chest pains	10(3.9)	103(40.6)	141(55.5)
Blood in urine	2(0.8)	32(12.6)	220(86.6)
Blood in stool	6(2.4)	94(37.0)	154(60.6)
Body swelling	5(2.0)	74(29.1)	175(68.9)
Sweating	17(6.7)	97(38.2)	140(55.1)
What do you do whenever you experience side-effects?			
Visit your doctor	58(22.8)	168(66.1)	28(11.0)
Visit your nurse	38(15.0)	171(67.3)	45(17.7)
Visit your pharmacist	54(21.3)	174(68.5)	26(10.2)
Visit family	4(1.6)	78(30.7)	172(67.7)
Visit friend	4(1.6)	59(23.2)	191(75.2)
Visit patent medicine shop	24(9.4)	58(22.8)	172(67.7)
Visit herbal clinic	52(.0)	36(14.2)	213(83.9)

Correlations

Knowledge with demography

Gender, marital status, education and occupation were correlated with knowledge of pain killers but age was not. Males were more knowledgeable so also were singles; respondents with secondary education were more knowledgeable and workers were more knowledgeable than artisans, retirees and drivers. Table 4.

Table 4: Cross tabulation of Pain reliever knowledge with demography

Variable	**Pain reliever knowledge**		**Total**	**p-value**
	Poor	**Good**		
Gender				
Male	21(8.3%)	78(30.7%)	99(39.0%)	
Female	84(33.1%)	71(27.9%)	155(61.0%)	0.000*

Marital status				
Single	37(14.6%	76(29.9%	11344.5%	
Married	68(26.8%)	58(22.8%)	126(49.6%)	
Widowed	0(0.0%)	5(2.0%)	5(2.0%)	0.000*
Divorced	0(0.0%)	10(3.9%)	10(3.9%)	
Age (years)				
18-30	47(18.5%)	67(26.4%)	114(44.9%)	
31-45	52(20.5%)	61(24.0%)	113(44.5%)	0.109
46-60	6(2.4%)	17(6.7%)	23(9.1%)	
Above 60	0(0.0%)	4(1.6%)	4(1.6%)	
Education				
Primary	26(10.2%)	15(5.9%)	41(16.1%)	
Secondary	64(25.2%)	91(35.8%)	155(61.0%)	
Tertiary	5(2.0%)	23(9.1%)	28(11.0%)	0.002*
None	10(3.9%)	20(7.9%)	30(11.8%)	
Occupation				
Carpenter	2(0.8%)	7(2.8%)	9(3.5%)	
Farmer	52(20.5%)	17(6.7%)	69(27.2%)	
Retiree	0(0.0%)	4(1.6%)	4(1.6%)	0.000*
Brick layer	6(2.4%)	0(0.0%)	6(2.4%)	
Iron bender	0(0.0%)	4(1.6%)	4(1.6%)	
Drivers	4(1.6%)	47(18.5%)	51(20.1%)	
Worker	41(16.1%)	70(27.6%)	111(43.7%)	

Health seeking behaviour with demography

Gender was not correlated with health seeking behavior but age, marital status, educational level and occupation were correlated. See table 5 for details.

Table 5: Cross tabulation of health seeking behavior with demography

Variable	Health Seeking behavior		Total	p-value
	Poor	Good		
Gender				
Male	16(6.3%)	83(32.7%)	99(39.0%)	
Female	27(10.6%)	128(50.4%)	155(61.0%)	0.794
Age (years)				
18-30	11(4.3%)	103(40.6%)	114(44.9%)	
31-45	32(12.6%)	81(31.9%)	11344.5%)	0.000*
46-60	0(0.0%)	23(9.1%)	23(9.1%)	
Above 60	0(0.0%)	4(1.6%)	4(1.6%)	
Marital status				
Single	16(6.3%)	97(38.2%)	113(44.5%)	
Married	17(6.7%)	109(42.9%)	126(49.6%)	
Widowed	0(0.0%)	5(2.0%)	5(2.0%)	0.000*
Divorced	10(3.9%)	0(0.0%)	10(3.9%)	
Education				
Primary	0(0.0%)	41(16.1%)	41(16.1%)	
Secondary	34(13.4%)	121(47.6%)	155(61.0%)	
Tertiary	4(1.6%)	24(9.4%)	28(11.0%)	0.010*
None	5(2.0%)	25(9.8%)	30(11.8%)	
Occupation				
Carpenter	0(0.0%)	9(3.5%)	9(3.5%)	
Farmer	7(2.8%)	62(24.4%)	69(27.2%)	
Retiree	0(0.0%)	4(1.6%)	4(1.6%)	
Brick layer	0(0.0%)	6(2.4%)	6(2.4%)	0.005*
Iron bender	0(0.0%)	4(1.6%)	4(1.6%)	
Drivers	5(2.0%)	46(18.1%)	51(20.1%)	
Worker	31(12.2%)	80(31.5%)	111(43.7%)	

Attitude to side-effects with demography

Gender was not correlated with attitude towards side-effects, but Age, marital status, education and occupation were correlated; attitude was most positive for the 18-45 year-olds, the married, those with secondary education and the workers as opposed to artisans. See table 6 for details.

Table 6: Cross tabulation of attitude towards side-effects with demography

Variable	attitude towards side effects		Total	p-value
	Poor	Good		
Gender				
Male	4(1.6%)	95(37.4%)	99(39.0%)	
Female	166.3%)	139(54.7%)	155(60.0%)	0.070
Age (years)				
18-30	20(7.9%)	94(37.0%)	114(44.9%)	
31-45	0(0.0%)	113(44.5%)	113(44.5%)	0.000*
46-60	0(0.0%)	23(9.1%)	23(9.1%)	
Above 60	0(0.0%)	4(1.6%)	4(1.6%)	
Marital status				
Single	16(6.3%)	97(38.2%)	113(44.5%)	
Married	4(1.6%)	122(48.0%)	126(49.6%)	
Widowed	0(0.0%)	5(2.0%)	5(2.0%)	0.010*
Divorced	0(0.0%)	10(3.9%)	10(3.9%)	
Education				
Primary	0(0.0%)	41(16.1%)	41(16.1%)	
Secondary	20(7.9%)	135(53.1%)	155(61.0%)	0.003*
Tertiary	0(0.0%)	28(11.0%)	28(11.0%)	
None	0(0.0%)	30(11.8%)	30(11.8%)	
Occupation				
Carpenter	0(0.0%)	9(3.5%)	9(3.5%)	
Farmer	0(0.0%)	69(27.2%)	69(27.2%)	
Retiree	0(0.0%)	4(1.6%)	4(1.6%)	0.036*
Brick layer	0(0.0%)	6(2.4%)	6(2.4%)	
Iron bender	0(0.0%)	4(1.6%)	4(1.6%)	
Drivers	8(4.7%)	43(16.9%)	51(20.1%)	
Worker	12(4.7%)	99(39.0%)	111(43.7%)	

DISCUSSION

Demography

This study shows that more females participated, compared to males. Majority of the respondents had secondary school education and were Christians. This is not surprising since Opokuma Community is in the Niger Delta with Christianity as the most dominant religion [Wikipedia 2015]. The predominant age group encountered in the study was 18-45 years, a vibrant and active working age group. Their reported annual income was in the range of 100-500 thousand naira which depicts that most of them earned a meager income and had financial constraints in meeting up with daily family obligations with about half of them being married.

Knowledge of adverse effects of pain killers

Regarding the knowledge of pain relievers, 65.4% of respondents had excellent/very good knowledge of the side-effects of the pain relievers they took; 16.1% had no such knowledge at all. This high level of knowledge may be adduced to the high level of interactions with health professionals arising from the health-seeking behaviours of the respondents and to the high prevalence of use of pain killers. It may also reflect a high literacy level [Devraj et al., 2013]. Other studies have reported that patients were given adequate health information by Health care professionals on NSAIDs use [Sulaiman et al., 2012]. Situations where patients have poor or inadequate knowledge of NSAIDs expose them to hazardous effects [Chen et al., 2014; Matoulková et al, 2013].

Knowledge of rational use of Pain Relievers

About half (53.5%) of respondents reported that they had very good knowledge of the dose of the pain relievers they took. However, majority of the respondents had average or poor knowledge of how to take their pain relievers in terms of duration, frequency, with food, alcohol, on empty stomach, and with antacid. This deficiency in knowledge of administration of pain relievers is of grave concern as improper administration could be responsible for therapeutic failure and adverse effects. A major contributory factor is the non-availability of proper drug information and counseling at the points of sale of such medications. In Opokuma clan there were no existing community pharmacy premises at the time of this study where, expectedly, proper pharmaceutical care would have been provided; rather

the community is flooded with chemist shops which are manned by non-professionals that were incapable of providing pharmaceutical care services. [Lanas et al., 2015]. In situations like this, the rational use of pain relievers cannot be expected. There is, therefore, a very distinct possibility that, in this community, non-responsible self-medication with pain killers will be prevalent and will pre-dispose to therapy failure and/or adverse effects. Economic loss will certainly feature as well. The knowledge of rational use of NSAIDs has also been reported as inadequate among users by other studies [Kassaw and Wabe, 2012]. There is an urgent need to intervene through appropriate public education and enlightenment programmes in order to avert looming catastrophic adverse events. There may as well be an under-recognized public health problem in this community.

Self-reported effectiveness of pain relievers

Majority of the respondents in this clan expressed confidence in the effectiveness of diclofenac potassium, ibuprofen, indomethacin, meloxicam, mefenamic acid, aspirin, naproxen, piroxicam, chloroquine, allopurinol and acetaminophen as pain relievers. All users of Arthocare found it non-effective; 40% and 25% respectively found Arthocare plus very effective and non-effective. All users of Cooelecoxib found it effective; all users of ketoprofen found it very effective. Over 90% of users of other pain-killers rate them as very effective or effective. These are self-reported outcomes of use of pain-killers and therefore, very subjective. The effectiveness of NSAIDs to relieve pain is not in doubt. The effectiveness of pain killers can be linked to right and accurate diagnosis, appropriate dispensing with the right drug information to the patient. Other studies have reported, an excellent effectiveness of NSAIDs in pain management mostly for psychogenic pains [Ong et al., 2007; Fine, 2013]. For short term pain relief (less than 6 months), all NSAIDs have a similar effect on reducing pain in adults with chronic pain from either osteoarthritis, rheumatoid arthritis, soft-tissue pain, back pain, or ankylosing spondylitis. [Dean, 2011].

All NSAIDs ease the pain and other symptoms of osteoarthritis and other types of pain, too. At equivalent doses, their effectiveness is essentially the same. No study, to date, shows that one NSAID is superior to others in relieving pain.

Significant outcomes from this study are the reasons proffered by the respondents for the non-effectiveness of pain killers. Respondents claimed the pain relievers were not effective because they were either adulterated, expired, due to poor compliance or use of low doses.

These reasons can definitely lead to loss of therapeutic effectiveness. The major procurement sources of medicines in this community cannot guarantee high quality medicines, good storage conditions to sustain the expected life-span of medicines and provision of optimal drug information to assure rational use. On the other hand, certain conditions may require drug combinations to achieve an effective therapeutic response [Laar et al., 2012]. Otherwise, consumers may experience a false negative response.

Self- Reported Adverse Effects of Pain Relievers

The spectrum of adverse effects experienced by respondents includes heart burn, stomach pain, chest pain, blood in urine/stool, body swelling and sweating.

These are ADRs expected from the use of NSAIDS particularly the more prevalent GIT effects and it similar to other reports [Taubert, 2008; Russell, 2001]. The effect of NSAIDs on the gastrointestinal tract has been established. COX- 1 which is found in most of the tissues helps in protecting the physiological integrity of the GIT. Therefore, the inhibition of COX- 1 impedes the gastric cytoprotective effect in the GIT resulting to hemorrhage, perforation and obstruction of the GIT [Ong et al., 2007; Taubert, 2008; Crofford, 2013].

Taking NSAIDs can increase the risk for stomach bleeding. It has been reported that more than 100,000 Americans are hospitalized each year and more than 16,000 die from ulcers and gastrointestinal bleeding linked to NSAID use, according to The Arthritis, Rheumatism and Aging Medical Information System. People who have previously had stomach bleeding and/or ulcers are at higher risk. Additional risk factors include older age and taking other NSAIDs, corticosteroids, or blood thinners—for example, clopidogrel or warfarin. [BBD 2013].

There are other severe ADRs due to NSAIDs use like cardiovascular, renal and hepatic dysfunctions. The available evidence indicates that other than aspirin and naproxen, NSAIDs in general are associated with an increased risk of heart attacks or strokes [Bhala *et al, 2013*]. NSAIDs have been associated with kidney failure, so people with kidney disease due to diabetes or other causes ideally should not take NSAIDs [BBD 2013;Lee et al, 2007].

These other ADRs require professional knowledge and skills to detect. Therefore, they may have been largely under-reported in this study but does not imply their non-existence. Furthermore, even though NSAIDs likely differ in the risks they pose to the stomach or heart, there is no NSAID that carries both a low risk of bleeding as well as low heart attack or stroke risk; the safety profile of the NSAID and the individual's risk profile are the two factors that inform on the choice and dose of a particular NSAID [BBD 2013].[35] These are indices that lay-people like those in this study cannot pre-determine. Therefore, people in this community can be said to be potentially at high risk of developing severe ADRs. An intervention is urgently required. NSAIDs are effective pain relievers. But even the nonprescription forms like

ibuprofen and naproxen can be dangerous when taken too often or in high doses regularly.

Health seeking behaviour

Health seeking behavior is an activity undertaken by individuals in response to their medical problems [Ige and Nwachukwu 2008]. More than average number of the respondents reported that they visited health professionals whenever they had pains or experienced side-effects sequel to use of pain killers. This is an appropriate health-seeking behaviour and the proportion of the population with this behaviour should be increased through public education. The availability of health facilities and health personnel must have influenced this behavioural pattern. However, few respondents visited friends, family and herbal clinic for help. This should be discouraged, also, through appropriate intervention. A study done in North Central of Nigeria reported that patients preferred seeking for solutions to their medical problems in private facilities rather than government hospitals [Akande and Owoyemi, 2009]. This is more prevalent in developing countries like Nigeria as patients seek for alternative measures to solve their health problems, a direct consequence of poor public health care facilities and personnel [Oluwatuyi, 2010; Iyalomhe and Iyalomhe 2012]. In this study also, 76.8% and 61.1% always or sometimes went to the church/mosque and massaging homes respectively to seek for medical attention and advice; 41.7% always or sometimes visited the chemist. The main problem associated with these alternative resource centres is that clients may not receive appropriate pharmaceutical care. However, 81.5% and 68.1% and 58.3% never visited herbal clinics, street vendors and chemists respectively. Overall, most respondents (over 80%) displayed appropriate health-seeking behaviours.

Correlations

Knowledge with demography

Gender, marital status, education and occupation were correlated with knowledge of pain killers but age was not. Males were more knowledgeable so also were singles; respondents with secondary education were more knowledgeable and workers were more knowledgeable than artisans, retirees and drivers.

Health seeking behaviour with demography

Gender was not correlated with health seeking behavior but age, marital status, educational level and occupation were correlated with health seeking behaviour.

Attitude to side-effects with demography

Respondents' attitude towards side effects had no correlation with gender whereas age group, marital status, educational and occupation of respondent had a correlation with their attitude towards side effects.

CONCLUSION

In this study, majority of the respondents were female, secondary school holders and Christians. The knowledge of adverse effects of pain relievers was high but their knowledge on rational use of pain reliever was inadequate. Regarding effectiveness of pain relievers, most respondents reported that they were effective. The majority of respondents reported that sometimes they experienced heartburn, stomach pain and chest pain after taking pain killers. More than average proportion of the respondents exhibited appropriate health-seeking behaviour in response to pains and adverse effects experienced. Gender, marital status, education and occupation were correlated with knowledge of pain killers, health seeking behaviour and attitude towards side effects. There is a dire need for extensive health education of people in this Clan on appropriate health-seeking behaviours and rational use of pain killers to avert acute and, especially, chronic adverse effects of pain-killers. Health professionals anr encouraged to provide appropriate pharmaceutical care to their patients. Appropriate stake-holders should conduct random checks on the quality of pain-killers in circulation in this community. NSAIDs are one of the most commonly used classes of medications but they should be used with caution because they can cause serious bleeding, heart attacks and strokes.

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