Inappropriate drug use and health-related quality of life among the elderly patients attending the Family Medicine clinic of a tertiary hospital in south-western Nigeria.

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ABSTRACT

Background and Aim: There is a high incidence of multiple morbidities, the tendency to take many drugs at a time, the use of potentially inappropriate medications (PIM), the use of over-the-counter medications (OTC's) and doctor-shopping among the elderly. This research studied inappropriate drug use (IDU) patterns and their relationship with the health-related quality of life (HRQoL) in elderly patients.

Methods: This was a descriptive cross-sectional study of 322 elderly patients attending the Family Medicine clinic of a tertiary hospital. The patients were recruited using a systematic sampling method, and their data was obtained using a structured questionnaire that incorporated Beer's criteria and SF 36 questions.

Results: The respondents' prevalence of IDU was high (n=284; 88.20%). The frequency of engagement in polypharmacy, the use of OTC drugs, and PIM among the respondents were 177(55%), 137 (42.5%), and 164 (50.9%), respectively. The overall HRQoL of the respondents was found to be good (>50 scores) in seven out of eight domains. The majority of the respondents who had poor HRQoL (n=81; 89.0%) were observed to also engage in IDU. However, the relationship was not statistically significant ($X2 = 0.080$, $p = 0.777$).

Conclusion and recommendation: A regular medication review by attending physicians and educating elderly patients and their caregivers on appropriate drug use is recommended.

Keywords: Inappropriate drug use, Health-related quality of life, Elderly, SF-36, Beer's criteria.

INTRODUCTION

On average, about one in five Nigerian elderly patients use at least one potentially inappropriate drug.1 Polypharmacy is also a common problem in the elderly partly due to their multiple morbidities.[1-4] In addition, many elderly patients procure over-the-counter drugs, and the use of these along with some medications sent from the diaspora are undisclosed to their Physicians. In addition, there is a reported high prevalence of 'doctor– shopping' among the Nigerian elderly patients due to a lack of satisfaction with being seen by a single Physician.[3] Considering the diminished physiologic reserve in the elderly, inappropriate drug use (IDU) could result in increased healthcare costs and poor clinical outcomes. The above factors no doubt will impact the health- related quality of life (HRQoL) in the Nigerian elderly. Furthermore, the elderly population is increasingly gaining global attention because of the progressive relative increase in the proportion of this population group in all nations of the world, including Nigeria. Globally, governments are concerned with enabling the elderly population to maintain an active lifestyle and contribute to the community, thereby enhancing their quality of life.[4,5]

There is a dearth of studies that assessed IDU and its relationship with the HRQoL in Nigerian elderly patients. The studies by Fadare et al. and Eze et al. assessed for inappropriate drug use in the Nigerian elderly and found it prevalent.[2] It is hoped that this study will open access to more information about the pattern of drug use and the associated factors in the elderly in Nigeria. Conducting this study will also bring to fore the health effects of IDU among the elderly population in Nigeria. Moreover, information from this study will validate the need for a regular medication review and the use of a screening tool like the Beers criteria to assess for IDU in the elderly

patients.

MATERIALS AND METHODS

It was a hospital-based, descriptive cross-sectional study. All patients aged 60 years and above who gave consent for the study were recruited, while those who were severely ill or with dementia (mini-mental state examination score between 0 and 9) were excluded. The minimum sample size determined using the formula6 N= Z2PQ/ d2, was 322. A systematic random sampling technique was used. During the consultation, each consecutive eligible patient, with their caregiver were informed of the study, and a written consent was obtained. The interviewer-administered questionnaire used in the study had four sections: section A was for socio-demographic data and general health information. Section B was for general physical examination and anthropometric measurements. Section C was Beer's criteria for assessing potentially inappropriate drug use, while section D was the SF-36 questions for assessing HRQoL. Sections A and D was filled by the researcher while interviewing the subjects, while section B was filled after physical examination of the subjects. Section C was filled for each of the respondents. The scoring of the responses to section D of the questionnaire was done by the researcher using a standard scale that assessed the eight domains of HRQoL.

The weight was taken in light clothing, with shoes off, and the height was measured using a stadiometer (Hana Japan) with the subject in an upright position, the head uncovered and the shoes off. Readings were done to the nearest 0.5kg and 0.1cm, respectively. The blood pressures were assessed after the subjects had seated and rested for at least 5 minutes using a sphygmomanometer (Accoson) and a stethoscope (Rappaport). Data analysis was analysed using the statistical package for social sciences (SPSS) software version 21 (SPSS, Chicago, Il, USA). Descriptive statistics were done for all variables; categorical variables were expressed in proportions and percentages. Bivariate analysis was performed to examine the association between variables and chi-square test for categorical variables. For all statistical analysis, p values of less than 0.05 were considered as statistically significant at 95 per cent confidence interval (CI). Data were presented using frequency tables, pie and bar charts.

RESULTS

Table 1 shows that out of the 322 respondents recruited for this study, 202 (62.7%) were within the age range of 60-69 years, while 237 (73.6%) were females. They were predominantly Christians (n=295, 91.7%) and largely belonged to the Yoruba ethnic group (n=314, 97.6%). In addition, the majority of the respondents, 213(66.2%), were unskilled workers, while 218 (67.7%) earned less than ₦18,000 monthly. The large majority of the respondents had either no formal education (35.4%) or primary school education (39.4%). The predominant source of income among the respondents was contributions from the family members (49.1%) The commonest health problems among the respondents were hypertension (n=199, 61.8%), sleeping problems (n=166, 51.6%), visual problems (n=146, 45.3%) and unintentional weight loss (n=144, 44.7%).

Furthermore, it was shown in figure 1 that the majority of the respondents (n=284, 88.2%) use drugs inappropriately (IDU) with a mean value of 1.118. In addition, it was found that 137 (42.50%) of the respondents used OTC drugs daily, 164 (50.9%) of them used at least one potentially inappropriate medication (PIM) daily, while 177 (55.0%) of them were engaged in polypharmacy. Furthermore, it was shown in Table 2 that 184 (91.1%) of those respondents who did not have memory problems used drugs inappropriately and this was statistically significant (x2 =4.162, df=1, p=0.041). There were no statistically significant relationships between IDU and the other health problems assessed in the study.

The study also found that 231 (71.70%) of the respondents had good overall HRQoL and the majority of them scored above 50% (good) in seven out of the eight domains of HRQoL. Furthermore, it was shown in table 3 that 81 (89.0%) of those respondents who had poor HRQoL were involved in IDU, but this was not statistically significant.

Table 1. The Socio-Demographic Characteristics of Respondents.

Socio-Demographic variables	n (%)
(N=322)	
Gender	
Male	85(26.4)
Female	237(73.6)
Age (Years)	
60 -69	202(62.7)
70- 79	113(35.1)
≥ 80	7(2.2)
Marital Status	
Married	158(49.1)
Separated	18(5.6)
Widowed	146(45.3)
Religion	
Christianity	295(91.7)
Islam	22(6.8)
Traditional Religion	5(1.5)
Ethnicity	

Yoruba	314(97.6)
Others	8(2.4)
Level of Education	
Tertiary Education	24(7.5)
Secondary Education	57(17.7)
Primary Education	127(39.4)
No formal Education	114(35.4)
Occupational status	
Professional	14(4.3)
Skilled worker	85(26.4)
Unskilled worker	213(66.2)
Unemployed	10(3.1)
Monthly income (Naira)	
<18,000	218(67.7)
≥ 18,000	104(32.3)
Source of income	
Retirement benefit/ pensions	71(22.0)
Contribution from family members	158(49.1)
Wages or earnings from a trade	93(28.9)

Professionals: Top civil servants & businessmen/ Contractors; Skilled workers: Middle level bureaucrats/Teachers/Skilled technicians/Large scale farmers and traders/ junior government employee; Unskilled workers: Small scale farmers and traders/Labourers/Messangers; Unemployed: Full time housewives/ retiree

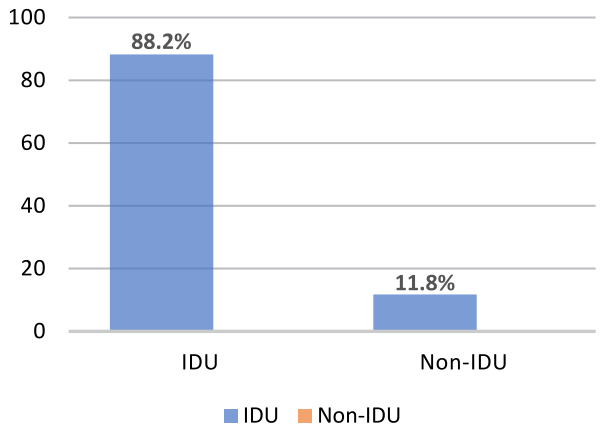

Figure 1. The pattern of inappropriate drug use among the respondents.

Table 2. Relationship between Inappropriate Drugs Use (IDU) and Common Health Problems.

N = 322	Inappropriate Drugs Use (IDU)		χ^2	df	p value
	IDU n(%) N=284	Non-IDU n(%) N=38			
Hypertension					
Yes	175(87.9)	24(12.1)	0.034	1	0.855
No	109(88.6)	14(11.4)			
Eye Problem					
Yes	128(87.7)	18(12.3)			
No	156(88.6)	20(11.4)	0.071	1	0.789
Memory Problem					
Yes	100(83.3)	20(16.7)			
No	184(91.1)	18(8.9)	4.350	1	0.037*
Unintentional weight loss					
Yes	123(85.4)	21(14.6)			
No	161(90.5)	17(9.5)	1.937	1	0. 164
Sleep problem					
Yes	150(90.4)	16(9.6)	1.540	1	0.215
No	134(85.9)	22(14.1)			

Table 3. The Relationship between Inappropriate Drug Use and Health-Related Quality of Life among the respondents.

N= 322	Inappropriate Drug Use (IDU)		χ^2	df	p value
HRQOL	IDU n(%) N=284	Non-IDU n(%) N=38			
Good Health	203(87.9)	28(12.1)	0.080	1	0.777
Poor Health	81(89.0)	10(11.0)			

DISCUSSION

The prevalence of multiple chronic medical conditions in the elderly, and the dwindling physiology and pharmacokinetics could impart the health and general well-being of the elderly.[7] Concerning this, there is an increasing focus on the health-related quality of life (HRQoL) and the general life situation of the elderly.[7]

This hospital-based study was conducted at the Family Medicine clinic of a tertiary hospital in South-Western Nigeria. There were 322 respondents studied within the age range of 60-90years. Over 90% of the respondents were of Yoruba ethnicity as they were indigenous to this part of Nigeria. The majority (73.6%) of the respondents were female, with a female to male ratio of 2.8: 1. This female preponderance is similar to the result obtained by Fakoya in a study among the elderly at Ilesa, Nigeria.8 He found a female to male ratio of 2.6:1.8 Dhalwani et al. in England also observed a female preponderance (F: M, 2.9:1) in his study of the association between polypharmacy and falls in older adults[7] The female preponderance may be explained by their innate tendency to present at the hospital with their health complaints in contrast with the male gender.

The larger proportion of the respondents in the present study had either primary education or no formal education (39.4% and 35.5%, respectively). This showed a low literacy level, which could explain the low earning power (66.7% of them earned less

than ₦18,000) and non-engagement in pensionable professions. In addition, it was observed that the respondents were predominantly unskilled (66.2%) during their active years of service. This, coupled with the level of education, could explain why about 78% of them depended on family contributions or earnings from a trade at the time of the study.

In addition, it was observed from this study that most of the respondents had chronic medical conditions that they had been managing. Many of the respondents had more than one chronic medical condition co-existing. This is similar to the finding in most other studies in the elderly, both locally and globally.[10-14] The commonest health problems found among the respondents (in descending order) were: hypertension, sleeping problems, visual problems and unintentional weight loss. This is similar to what Fakoya found in Ilesa, Nigeria (in descending order): Hypertension, musculoskeletal problems, visual problems and sleep problems). Hypertension remained a significant health problem in adults globally, accounting for 60% of hospital visits.[14] The prevalence of hypertension in this present study was 61.8%.

In addition, sleeping problems, predominantly primary insomnia, had a prevalence of 51.6% in this study. It included: poor sleep quality, early-morning wakefulness, difficulty initiating sleep and difficulty maintaining sleep. The third most common health problem found among the respondents in this study was visual problem, and it had a prevalence of 45.3%. The fourth most common health problem found in this study was unintentional weight loss, with a prevalence of 44.7%. It could be as a result of undernutrition, inter-current illness or sarcopenia.

Furthermore, this study found inappropriate drug use (IDU) to be present in 88.2% of the respondents. This revealed that IDU is quite common among the respondents and may have a great impact on the health of the respondents. Regarding polypharmacy, the prevalence gotten in this present study is similar to the 51.9% gotten among the admitted elderly patients studied by Nobili et al. in Italy.[15] However, much higher prevalences, 89% and 76.1% were gotten by Al Ameri and Gavillan in their studies at UAE and Spain, respectively.[16,17] This may be explained by the morbidity patterns and treatment demands in the different study populations. However, the prevalence gotten by Adebusoye et al in Ibadan, Nigeria was lower (23.8%).[18] This may possibly be due to the differences in community type, which may determine the social class and hence the pattern of drug use among the respondents. The Adebusoye's study was conducted in an urban community while the present study was carried out at Ilesa, a sub-urban community. Moreover, regarding PIM use, the prevalence gotten in the present study is relatively similar to what is found in other studies. Eze et al. got a prevalence of 45.6% at Sagamu, Nigeria.[3] However, most other reviewed literatures documented lower prevalence; for instance, Gavillan got 35% in Spain while Adebusoye got 31% in Ibadan, Nigeria.[17,19]

In addition, regarding OTC usage, the prevalence gotten in this present study is similar to what was gotten by Masumoto et al. in Japan, who found a prevalence of 32.5%.[20] However, other studies found higher prevalence of OTC use among the elderly. The studies by Parmar et al. and that by Manisha et al, both in India, found 88.5% and 61.4%, respectively, while the study by Schiopu in Moldova, Europe found 76.4%.[20-23] This may be explained by high consumption of multivitamins and other supplements procured over the counter by the elderly in these communities.

The majority of the respondents in the present study had a good overall HRQoL evidenced by scores of above 50 in seven out of the eight domains. However, most literature on previous studies documented poor HRQoL scores. Ijioma et al. in Enugu, Nigeria, Onunkwor et al in Malaysia and Su et al in the Republic of China all found poor HRQoL among the elderlies they studied.[24-26] This may partly be explained by the fact that the majority (62.7%) of the respondents in the present study were in the early old age group of 60-69years, wherein the ageing process and the chronic morbidities had just started to take their toll on the health of the respondents. Furthermore, the domain with the highest frequency of good scores among our respondents is the social functioning domain (88.5%), while the domain with the highest frequency of poor score is the role limitation due to the physical health domain (58.9%).

In addition, the present study found a statistically insignificant association between IDU and poor HRQoL. The importance of this association cannot be ignored despite the statistical discrepancy as IDU has been found to be very common among the respondents. As documented by previous researchers, Henderson et al. in the USA found that polypharmacy had a negative effect on the physical component summary of HRQoL in his respondents.[27] This could possibly be explained by the fact that Henderson reduced the cut-off limit for his research subjects to ≥50years and that he used a lower cut-off limit of ≥4 drugs for polypharmacy. In addition, Bobsoom et al. [28] found that the use of potentially harmful medications (using polypharmacy as a

measure) had a negative effect on HRQoL28 Bobsoom et al. also found no relationship between PIM (Beers criteria) and HRQoL.[28] It was noted that Bosboom's respondents had mild to moderate cognitive impairment and were all living in an institution. This probably contributed to his findings. Moreover, a study done by Al Aqqad et al. in Malaysia found that there was no statistically significant association between PIM (using STOPP criteria) and HRQoL.[29] The use of a different criterion by Al-Aqqad in assessing for PIM as well as the fact that the respondents were residents in a nursing home may explain the difference in results obtained in the two different studies.

LIMITATION OF STUDY

This is a hospital-based study, and the results may not be the true reflection of the morbidity pattern of the elderly in the general population. In addition, because of the cross-sectional nature of this study, the causal relationship between the variables could not be ascertained.

CONCLUSION

This study assessed the pattern of inappropriate drug use, health-related quality of life, and inter-relationship among the elderly.

1. IDU was very common, being present in about 9 out of 10 (88.2%) of the respondents.
2. The absence of memory problem was the only factor found to be associated with IDU.
3. Most of the respondents in this study had good over-all HRQoL.
4. IDU did not have a statistically significant relationship with HRQoL of the elderly.

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CONFLICT OF INTEREST

There are no conflicts of interest.

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