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Research Article

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Knowledges, Attitudes and Practices Related to Primitive Open Angle Glaucoma in The Adult Population in Northern Benin

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ABSTRACT

***Introduction**: Primary Open Angle Glaucoma (POAG) is a serious condition responsible for irreversible blindness. It is one of the main causes of blindness in developing countries.*

***Purpose**: To assess the knowledges, attitudes and practices relating to Primary Open Angle Glaucoma (POAG) in the adult population in northern Benin.*

***Patients and methods**: This was a cross-sectional descriptive and analytical study. It concerned all persons aged 18 years old and over. We had done a two-stage sampling. The Chi² test, at the 5% threshold, had been used to study the associations.*

***Results**: Of a total of 560 subjects, 548 (97.85%) participated in the study. The mean age was 33.1 ± 16.5 years. The male sex was more represented (61.13%) with a sex ratio of 1.57. The secondary level was represented with 46.35% (n = 254) and as an occupation, 22.63% (n = 124) were traders. 70.99% (n = 389) of subjects had heard of eye disease, of which only 8.76% (n = 48) had heard of glaucoma. It is called Naradiou in Bariba. But only 1.24% had a good knowledge of the disease. 50% (n = 24) did not known the cause, 4.17% (n = 2) attributed it to the curse and 2.08% (n = 1) to witchcraft. 72.50% (n = 35) knew that glaucoma could progress to blindness and 59.09% (n = 13) thought it was irreversible. 79.17% (n = 38) of subjects knew that there is a treatment, 52.63% (n = 20) said it was medical, 36.84% (n = 14) said it was surgical and 10, 53% (n = 4) thought it is traditional. The attitude was bad in 57.74% of the cases. Education and occupation were significantly associated with glaucoma knowledge and practice, but only gender was statistically related to attitude with a p-value of 0.0052.*

***Conclusion**: The level of knowledge of POAG in the adult population in northern Benin is alarming, as is the attitude and the practice which remains to be improved. Communication programs for behavior change must be initiated in order to reduce the rate of blindness linked to this pathology in this population.*

Keywords

POAG, Knowledges, Attitudes, Practices, Parakou.

Introduction

Glaucoma is a group of diseases that have in common a characteristic optic neuropathy which is determined by both a structural change (damage on the optic disc) and a functional deficit (damage on the visual field) [1]. There are different types of glaucoma including primary open-angle glaucoma (POAG) which is the most common type. Worldwide, POAG accounts for 2% of cases of visual impairment and 8% of cases of blindness [2]. Primary open-angle glaucoma (POAG) is an anterior optic neuropathy, chronic and progressive, characterized by papillary and campimetric changes [3], requiring a long-term care [4]. The asymptomatic nature and the uncurable blindness it can make POAG the second leading cause of blindness worldwide [5] and a public health challenge [6]. It is therefore essential that the populations have a good knowledge of POAG in order to develop an attitude of spontaneous use of eye health services with a view to regular eye control; thus, increasing the chances of identifying undetected cases in time [7], in view to delay the deterioration of the visual field [8,9].

Patients and Methods

This was a descriptive cross-sectional and analytic study, which took place in the commune of Parakou in northern Benin, over a period of 5 months (from April 1st to August 30th, 2019). Patients aged 18 years old and above and living in one of the neighborhoods of Parakou commune for at least 05 months were included in the study. The variables studied were knowledges; attitudes and practices in regard to POAG. Sex; levels of education or education; age; family history of eye disease; eye conditions other than POAG were studied too.

The data collected was recorded, processed and analyzed by EPI data 3.1 and EPI Info 7.2.2.2 software. The qualitative variables had been analyzed independently and presented in the form of distribution tables comprising the numbers (n) and the proportions in the population (%). As for the quantitative variables, the determination of the extremes and the calculation of the means, adjusted for the standard deviations, had made it possible to appreciate the general trends. The Chi-square test, at the 5% threshold, was used to study the association and the relationships of independence between qualitative variables. These associations were made in two modalities good and bad.

Results

Socio Demographic Characteristics of The Study Population

Our sample was 560 subjects including 548 respondents, ie a participation rate of 97.85%.

Age: The mean age was 33.01 ± 16.5 years. The 20-40 years old age group represented 66.61% in our study. Figure 1.

Sex: 61.13% of the subjects were male. The sex ratio was 1.57.

Marital status: In our sample 50.36% of the participants were single.

Educational level: The secondary level accounted for 46.35%.

Socio-Professional Category: In our study, students, traders and artisans represented 25.91%, 22.63% and 10.22% respectively (Table 1).

Table 1: Distribution of surveyeds persons in 2019 in the municipality of Parakou according to the socio-professional category.

	Effectifs	Pourcentage (%)
Students	142	25.91
Tradespeople	124	22.63
Craftsmen	56	10.22
Officials	53	9.67
Housewives	31	5.66
No profession	19	3.47
Farmens	19	3.47
Retirees	12	2.19
Others (…)	92	16.79
Total	548	100.00

Knowledges

Eye disease: After our survey, 389 (70, 99%) of the subjects had declared to have already heard of eye diseases; and 108 (19.71%) suffered from one of these diseases (Table 2).

Table 2: Distribution of surveyeds persons in 2019 in the municipality of Parakou according to knowing or suffering of eye diseases.

	Effectives	Percentage (%)
Known eye disease (n=389)		
Myopia	184	47.30
Conjunctivitis	156	40.10
Cataract	153	39.33
Hyperopia	46	11.83
Presbyopia	36	9.25
POAG	48	8.76
Others	36	9.25
Eye disease they suffer from (n=108)		
Myopia	56	51.85
Conjunctivitis	20	18.52
Cataract	8	7.41
Hyperopia	4	3.70
Presbyopia	3	2.78
POAG	1	0.93

Blindness: A total of 29.56% of the subjects knew what is meant by blindness.

Glaucoma: In our study 48 (8.76%) subjects knew of glaucoma. And the signs cited were eye pain (33.33%), headache (29.17%) and decreased vision on the side (22.92%) (Table 3).

Regarding risk factors, 41.67% of respondents did not know, compared to 33.33%; 16.67% and 14.58% respectively reported an age over 40 years, a family history of glaucoma and heredity. And with regard to the causes of glaucoma 50.00% said they did not know and 4.17% attributed it to the curse and 2.08% to witchcraft.

Table 3: Distribution of surveyeds persons in 2019 in the municipality of Parakou according to symptoms of POAG.

	Effectives	Percentage (%)
Do not know	10	20.83
Eye pain	16	33.33
Headache	14	29.17
Reduce vision on the side	11	22.92
Blurred vision	11	22.92
Eye redness	10	20.83
Tearing	7	14.58
Itching	5	10.42
Eyelid contact	4	8.33
Impression of having fog on the glasses	3	6.25
Presence of colored halos	2	4.17

Of all the subjects who knew about glaucoma, 38 (79.17%) knew there was a cure for the disease. And 20 (52.63%) said it is medical, 14 (36.84%) said it is surgical and 4 (10.53%) thought it is traditional. Half of the subjects, ie 50.00%, thought that the treatment for glaucoma was short-term, while the other half said that the treatment was lifelong (Table 4).

Table 4: Distribution of surveyeds persons in 2019 in the municipality of Parakou according to risk factors or etiologies of POAG.

	Effectives	Percentage (%)
Risk factors of POAG (n=48)		
Do not know	20	41.67
Age superior to 40 years old	16	33.33
Family histories of glaucoma	8	16.67
Heredity	7	14.58
Significant changes in blood pressure	6	12.50
Intraocular Pressure greater than 21mmHG	6	12.50
Diabetes	5	10.42
Myopia	3	6.25
Taking corticosteroids	3	6.25
Smoking in progress	3	6.25
Ethnicity	2	4.17
Overweight	2	4.17
Stress	1	2.08
Causes of glaucoma (n=48)		
Do not know	24	50.00
Eye malformation	11	22.92
Obstruction of the hole where the liquid come out	10	20.83
Traumatism	6	12.50
Medications	6	12.50
Curse	2	4.17
Witchcraft	1	2.08
Accident	1	2.08

Glaucoma can cause blindness according to 72.50% of people who knew the disease. And 13 (59.09%) said this blindness cannot be treated.

Of the subjects with glaucoma, 18.75% claimed to have a family history of glaucoma.

Degree of knowledge: After assigning scores, it emerged that 93.43% of the subjects in our study had poor knowledge of primary open-angle glaucoma (Figure 2).

Attitudes

Attitude towards eye care: 56.01% of those surveyed declared "resistant for a few days" before going for a consultation in case of eye pain (Table 5).

Table 5: Distribution of surveyeds persons in 2019 in the municipality of Parakou according to their attitudes face to POAG.

	Effectives	Percentage (%)
Attitude face to eye pain		
Resist for a few days	303	56.01
Directly decides to go see a doctor	110	20.33
Automatically take paracetamol at home	45	8.32
Call the major	19	3.51
Never had this disease	64	11.83
Where are you going for treatment?		
Hospital	289	53.22
Selfmedication	157	28.91
Traditional therapist	47	8.66
Specialist	42	7.73
Pharmacy	8	1.47

Degree of attitude: 11.77% of the subjects in our study had a good attitude towards primary open-angle glaucoma (Figure 3).

Practices

Practice for glaucoma: In our study, it emerged that 62.72% of the individuals questioned did not find it inconvenient to seek treatment if they suffered from glaucoma. As to where they would go for glaucoma care, the answers were in hospital 74.06% of the time.

Degree of practice: After attribution of scores, it emerged that 20.99% of the subjects in our study had good practice with regard to primary open-angle glaucoma.

Search For Associated Factors

Knowledges: Good knowledge of glaucoma was statistically significantly associated with high school and university levels. It was also with the socio-professional categories (students and retired persons).

Attitudes: The variables primary education level, male gender and socio-professional categories were significantly associated with poor attitudes towards glaucoma in our study.

Practices: Poor glaucoma practices was significantly associated with the subject having no profession with a p value of 0.0299.

Discussion

Sociodemographic characteristics

In our sample, the most represented age group was that of 20-40 years old (66.61%). It was similar to that reported by Alemu et al. [10] in 2017 in Ethiopia which was 35-44years old. And the average age in our series was 33.01 ± 16.5 years old. This was also the one reported by Ogbonnaya et al. [11] in 2016 in Ebonyi State in Nigeria which was 31.7 ± 11.9 years old. However, in

Australia, a work carried out in 2017 by Simon et al. [12], found 64.7 ± 11.1 years old as the mean age. This could be explained by the constitution of their sample, and it could be that older adults were more represented. Regarding to the sex, in our sample we noted a male predominance of 61.13%, which was similar with that obtained in India by Rewri et al. [13] 63% and in Agbadan in Nigeria 52.5% [14]. On the other hand, De-Gaulle et al. [15] in Ghana, Okoye et al. [16] and Adewoye et al. [17] in Nigeria found 60.3%, 60.7% and 73% of women respectively. This could be explained by the fact that in most African countries, women are still predominantly housewives and the man is the only one, if not the one who is in search of resources for the family: this is why men are not. not many participate in population studies. Regarding the level of education, our respondents mostly had a secondary level. This was also the case in northern Togo with Ayena et al. [18] where 51% were students. Ogbonnaya et al. [11] reported the same in their study carried out in a state in Nigeria where 82.8% of respondents had secondary education or below. Traders were more present with 22.63% in our series. They were also at 38.9% in the series of Onwubiko et al. [14]. But in Togo, Ayena et al. [18] in their study noted that executives and administrators were the most represented at 22%. This may have been due to the hours the data were collected and the period that probably coincided with the holidays when the students were at home.

Knowledges

Our study found that in Parakou municipality, more than 2/3 (70.99%) of the study population had heard about eye diseases. And the best-known eye diseases were myopia followed by viral "APOLLO", acute bacterial conjunctivitis and cataracts. The latter is called "Gbiriwonkorou" and "danaterè" respectively in the Bariba and Dendi language, the ethnic groups most represented in Parakou and also in our sample. On the other hand, for glaucoma, very few people had heard about it (8.76%), and it is called "Naradiou" in Bariba. Our result is similar to several studies. In 2014, Rewri et al. [13] in their study which aimed to assess the level of glaucoma awareness among the rural population of northern India, found that 8.3% only of the subjects in their sample had heard about glaucoma. For Abagana in Nigeria [14] 5.8% knew glaucoma. According to Yehouessi et al. [3] in Cotonou (Benin Republic), glaucoma was experienced by 21% during their work at the National University Hospital Center Hubert Koutoukou Maga of Cotonou. A Ghanian study on glaucoma self-care awareness, knowledges and practices among graduating health science university students found that even in The medical community, POAG was little known, out of the 273 respondents only 37.70% knew it and the majority 65.9% confused it with ocular hypertension [19]. This was also revealed in Helsinki (Finland) in a descriptive study conducted on glaucoma awareness and personal care practices among health professionals in a teaching hospital over a period of three months from July to September 2013, where the results were unsatisfactory [20]. On the other hand, in Gondar in northeast Ethiopia [10] and in Kara in Togo [18], glaucoma was experienced by 49.6% and 36.9% of respondents, respectively. These disparities are said to be due to the fact that in these countries, a certain awareness was being raised, thus allowing the population to be informed. And also, we noted that it is in the population or among the nursing staff, the level of knowledge of glaucoma remains unsatisfactory. Despite its serious consequences, its knowledge remains limited. There are even areas where people have never heard about it. Like the east side of Uttar Pradesh [21] in India where according to a study carried out in 2018, 325 (59.09%) had never heard about glaucoma out of the 550 subjects in the sample. In our study, those who knew about glaucoma had the information either because they are glaucomatous themselves or one of their parents has glaucoma. The same observation was made by Rewri et al. [13] and Maharana et al. [22] in India. However, for Isawumi et al. [23], those who knew about glaucoma had their information either during visits to an eye clinic (51.2%) or because they knew someone with glaucoma (36.6%). On the other hand for Murdoch et al. in Ghana [24], television and radio were the main sources of information for participants. This difference could be explained by the fact that with us the medical examination is not systematic and accessible to people for a certain social layer. In addition, television and radio are being abandoned to the profile of social networks. Among the risk factors most implicated in our study, advanced age represented 33.33%, family history of glaucoma represented 16.77%. Another study reported similar results. Thus, Jin et al. [25] in Toronto in their 2014 study about Glaucoma knowledges among a black community in Toronto, the family history of glaucoma was mentioned as a risk factor by three quarters of the participants (76%) and less than half had mentioned the black race with 48.7% then advanced age (40 years and over) with 46.2%. When asked about the causes, out of the 48 persons who heard about the disease, 50.00% had no knowledge of it, 4.17% and 2.08% respectively thought that glaucoma is caused by curse and witchcraft. Onwubiko et al. [14] in Nigeria found that 3.70% attributed the cause to the spiritual problem and 1.90% to the poison. Isawumi et al. [23] found that 48.80% also answered "I don't know" and 24.40% of the participants answered "Curse of God". These results corroborate our own, thus highlighting the ignorance that stems from the attachment of Africans to their culture and this fact is said to be one of the causes of low attendance at modern health centers. Murdoch et al. [24] in Kumasi, Ghana had performed a study in 2016 where 56% of participants had heard about glaucoma, and among them, 29% had knowledge of the specific symptoms or causes of the disease. Education was among the significant indicators of awareness. This could be explained by the constitution of their sample where there were certainly more educated subjects. Of the 8.76% of the subjects who knew glaucoma in our study, 72.50% said it was a serious disease that could lead to blindness. The same observation had been made by other authors. Thus, De-Gaulle et al. [15] found in their study published in 2016 that among those who were aware of the existence of glaucoma in their sample, 99.1% agreed that glaucoma can causes blindness. Tchabi et al. [26], also confirmed this according to their study carried out in Cotonou, Benin, where 91.7% of participants knew that glaucoma progressed to irreversible blindness in the absence of treatment. However, in 2018 in India, Kaur et al. [21] found in their study that

81.81% of their study population did not know that glaucoma was a blinding disease. Likewise, Ramavat et al. [27] found that 41.38% did not know that vision loss due to glaucoma was irreversible. In our study the majority of subjects (79.17%) who knew glaucoma knew that there was a treatment. Of these, 52.63% said it was medical, 36.84% said it was surgical, and 10.53% thought it was traditional. Half of the subjects thought that the treatment for glaucoma was short term, while the other half said the treatment was lifelong. This is also reported by Tchabi et al. [26] in their study entitled survey of medical treatment in primary open angle glaucoma where 90% of participants knew that medical treatment was instituted for life. A study carried out in southwestern Nigeria by Isawumi et al. [23] found that of the 41 participants who had heard about glaucoma, in responses to treatment questions, 48.8% of participants answered "I don't know how to treat it" and 36.6% replied "medically". For Gupta et al. [28] in New Delhi, India of the 312 patients included in their study, 88% believed that surgery was the cure for glaucoma. After attribution of scores show that of the 8.76% who heard of glaucoma only 1.28% had a good knowledge of primary open-angle glaucoma. Our results were similar to several reported studies. For Rewri et al. [13] in India, out of 8.3% who heard of glaucoma only 1.89% of subjects had knowledges about glaucoma. Likewise, for Rajendra et al. [29] in west Nepal in 2014, of the 60.60% of their sample who heard of the term glaucoma only 5.50% had any knowledge of glaucoma. Prabhu et al. [30] also found that of the 4.80% who had heard of glaucoma only 3.10% of them had any knowledge of glaucoma. Ogbonnaya et al. [11] in their work on Glaucoma Awareness, knowledge and attitudes towards screening in a rural community in Ebonyi State, Nigeria, found that only 6.30% of respondents had a good knowledge of the disease. The authors therefore concluded that knowledge and understanding of glaucoma was low in this rural community. Ntim-Amponsah et al. [31] in Ghana found in their study that people in higher positions of responsibility were 9 times more likely to understand glaucoma than people with lower activity levels with a p value of 0.0001. In Toronto, Jin et al. [25] also reported that poverty was associated with insufficient knowledge about glaucoma. From our study, it also emerges that the level of knowledge is significantly associated with the level of education with a p-value of 0.000 as well as with the socio-professional category. The more educated the subject, the more familiar with the disease. These results are similar to those of several other authors [11,16,32]. This low level of knowledge, i.e. 1.28% found in our study, could be explained by: insufficient information of the population (this information sharing which must be done by the mass media), insufficient visits, spontaneous medical treatment during which prevent the population to be often inform about preventive methods, the inaccessibility of the Internet and literacy training are also to blame. Gilmour-white et al. [33] also noted in their study these various shortcomings and put more emphasis on the lack of information which is the key to the problem.

Attitudes

In our study, to the question "if your eyes hurt, what do you do?" ", More than 50% had answered" resist at home for a few days ". In Kumasi in Ghana in 2016 it was reported by Murdoch et al. [24] that 90% of participants mentioned going to the hospital or going to see a doctor in case of eye pain. We can evoke the probability that their sample consisted mainly of people with a substantial source of income whereas in our study, the majority were students without a source of income. In addition, we found that the socio-professional setting was significantly associated with attitude. Subjects with no financial resources are more associated with the wrong attitude with a p-value of 0.0388. In our work, 15.89% of women versus 7.76% of men had a good attitude. On the other hand, in other studies, men tended to have a better attitude than women. This could be explained by the size of the sample, and the number of singles in the sample. In our sample there were more single people (50.36%), and most of the time the single woman does not expect the approval of a man for her health care. So, in their studies they might have more married women, so their eye care would depend on their husbands. After scoring it emerged that when it came to attitudes towards this silent thief of sight, 57.74% had a bad attitude. Ogbonnaya et al. [11] in 2016 in their study in Ebonyi state in Nigeria found that 62.1% had a positive attitude. This could be explained by the level of knowledge of their population which was perhaps high because in our study, the level of knowledge was low which would influence the attitude. Regarding the level of education, the lower it is and the more the subject was associated with a bad attitude, the primary level was associated with a bad attitude with a p-value of 0.0322.

Practices

Eighty individuals (14.60%), reported making regular medical visits. This percentage was shared between the patients who were followed up and the insured workers. We found that 62.72% of the individuals surveyed did not see any problem in seeking treatment (surgery) if they suffered from glaucoma. On the other hand, other studies had reported that in southwestern Nigeria in the state of Osun [23], 73.20% would refuse a surgical intervention, half of them had mentioned the fact that “she cannot cure or reverse the disease”, while 26.70% would refuse out of fear, only 19.50% would accept surgery. And another study carried out in 2015 by Abdull et al. [34] on Primary Open-Angle Glaucoma in Northern Nigeria: Stage of Presentation and Acceptance of Treatment found that 37.00% of their subjects rejected surgical treatment because of fear, 27.00% preferred medical treatment. This could be explained by the lack of information. After the score given, we found that 20.99% of the subjects in our study had good practice with primary open-angle glaucoma. And as to where they would go for glaucoma care, the majority of responses were in hospital 74.06% of the time. Murdoch et al. [24] in Ghana in 2016 reported in their study that 90% of the participants mentioned going to a hospital or seeing a doctor if they had an eye problem. In 2013 in Helsinki (Finland), a study on glaucoma awareness and personal care practices among healthcare professionals revealed unsatisfactory results [20]. The authors did not explain the points of dissatisfaction in detail, but we could infer that the practices were not as satisfactory as the study looked at the practices. It emerges that in our study the more the subject had a good knowledge of the disease, the better his practice vis-à-vis this disease was. Aghdo et al. [35] in South Africa had

also found it in their study carried out in 2018 on Knowledge, attitudes and practices of personal care of patients with glaucoma. Thus on 62.00% of patients who had a good knowledge of glaucoma; 89.60% had good practices. Poor glaucoma practice was significantly associated with the subject having no profession with a p-value of 0.0299. We can therefore say that the subject with a high level of education, having a profession and a good knowledge of the disease, is therefore more likely to have a good practice vis-à-vis this disease.

Conclusion

POAG is a devastating and disabling optic neuropathy. Its prevalence, which increases with age, makes the adult population an ideal target. Our descriptive study on knowledge, attitudes, and practices relating to POAG in the adult population of the municipality of Parakou in northern Benin in 2019 allowed us to lift the veil on the low level of knowledge of this population. Young adults were more present with a male predominance. The majority of the subjects had already heard of eye diseases, among these a minority had a good knowledge of glaucoma. Half of those who had this good knowledge of the disease did not know the cause, some attributed it to the curse and others to witchcraft. More than half knew that glaucoma could progress to irreversible blindness. Education level and socio-professional category were significantly associated with knowledge and practice of glaucoma, but gender was statistically related to attitude. In order for the population to have a good knowledge of the POAG to develop appropriate attitudes and practices vis-à-vis it, hospital practitioners should do more mass awareness.

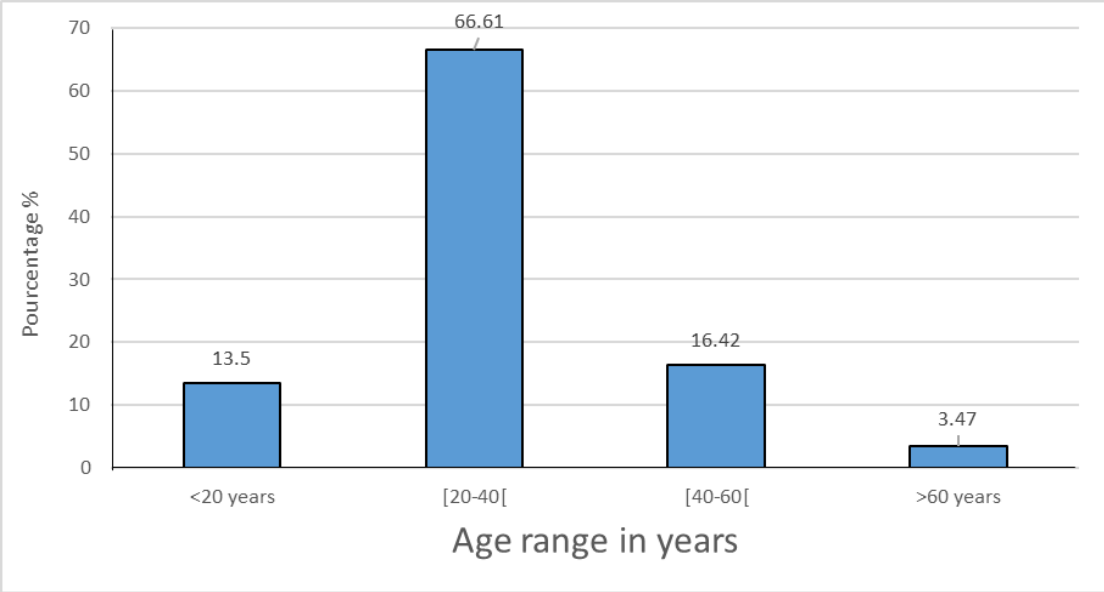

Figure 1: Repartition of the surveyeds in 2019 in the municipality of Parakou according to their age.

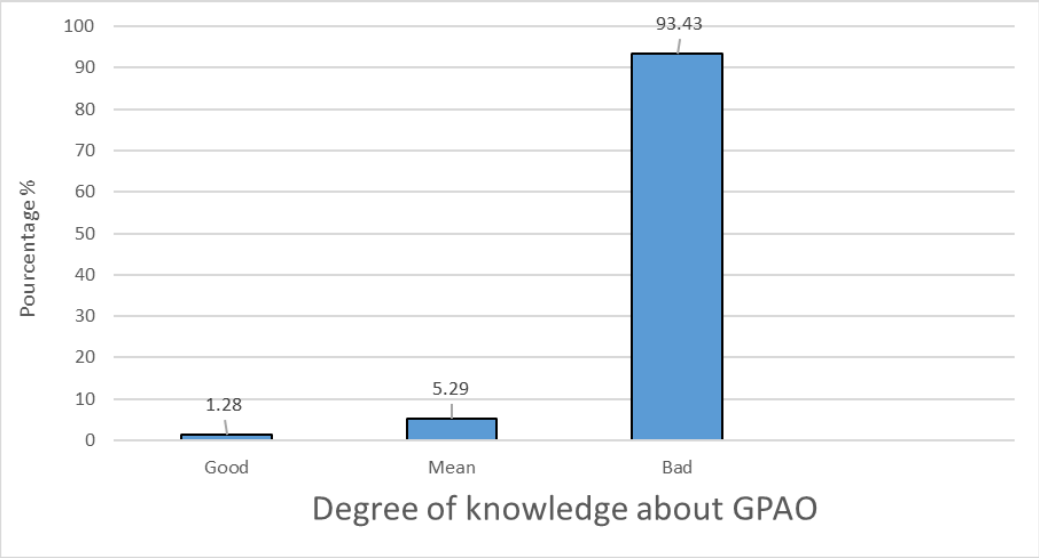

Figure 2: Repartition of the surveyeds in 2019 in the municipality of Parakou according to their degree of knowledge of POAG.

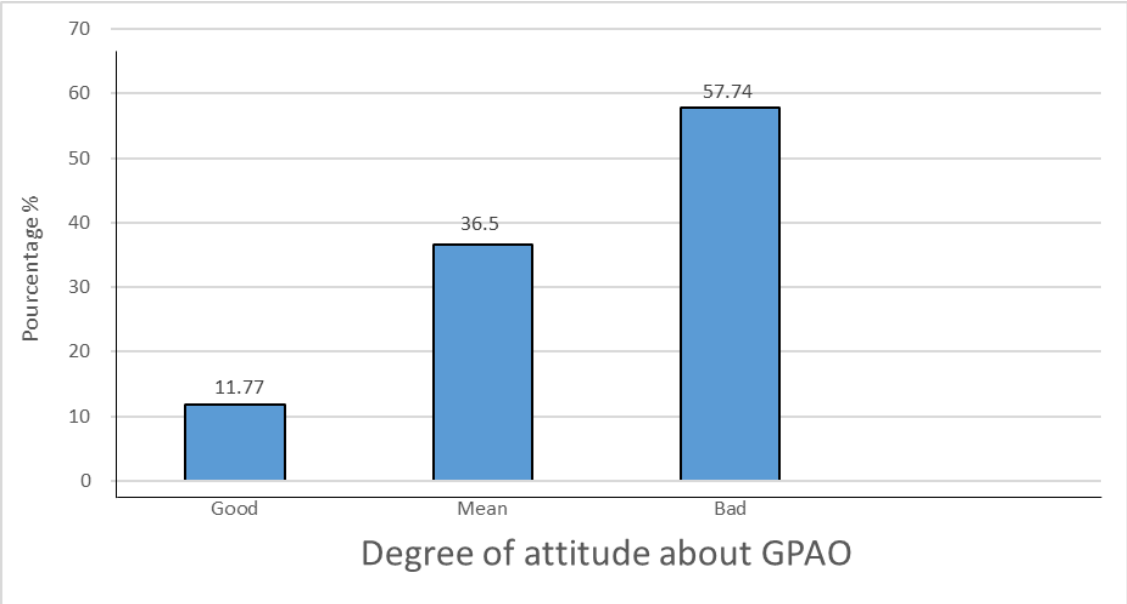

Figure 3: Repartition of the surveyed in 2019 in the municipality of Parakou according to their degree of attitude toward POAG.

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