

## Study of the factors influencing the non-adherence to treatment in a psychiatric population in Bingerville, Côte d'Ivoire

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### Abstract

**Background:** Poor adherence to treatment is a worrying phenomenon that affects many patients worldwide. It can seriously compromise the effectiveness of treatment, leading to worsening symptoms, frequent hospitalizations and even reduced life expectancy.

**Objective:** To identify factors leading to non-compliance with medication in psychiatric patients.

**Methods:** This is a cross-sectional analytical study took place from 6 January to 3 February 2020 at Bingerville Psychiatric Hospital. It was conducted with 60 patients.

Sociodemographic data was collected from patients using their medical records. Medication adherence was assessed using Thompson's MARS (Medication Adherence Rating Scale).

**Results:** Patients with a secondary education were the least compliant (61.90%), followed by those with a university education (16.67%) and those with no education (11.90%). Patients with primary education were the least compliant, at 9.52%. These differences are not significant ( $\chi^2 = 1.15$ ,  $p = 0.2827$ ). Of the 42 non-compliant patients, 61.90% were unemployed (26 cases). 4.76% were civil servants, 2.38% were self-employed and 30.95% worked in other sectors. These differences are not statistically significant ( $\chi^2 = 1.15$ ,  $p = 0.2827$ ). Among the non-respondents, 88.10% were single, 7.14% were cohabiting, or married and 2.38% were divorced or widowed. These differences are significant ( $\chi^2 = 15.78$ ,  $p = 0.0001$ ).

**Conclusion:** To improve the monitoring of psychiatric treatment in Côte d'Ivoire, a larger sample size should be included, and the questionnaires should be adapted to reflect African realities. This should consider socio-demographic, ethno-social and spiritual factors. Studies could also explore the relationship between the type of disorder and the therapeutic alliance.

**Keywords:** Psychiatry Population; Poor Compliance; Therapeutic Treatments; Population in Bingerville; Côte d'Ivoire

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## 1. Introduction

Poor medication adherence, also known as therapeutic non-adherence, refers to the failure to comply with medical treatments, which can have serious health consequences. In psychiatry, as in other medical disciplines, non-adherence by patients is one of the main barriers to controlling their disorders. Many studies have shown that poor medication adherence in patients with psychiatric disorders is a problem with many parameters [1]. An average medication adherence rate of 50% is classically found in the literature [2]. Medication adherence rates vary depending on the type of disease. Some patients with chronic conditions such as diabetes or hypertension may have higher adherence rates than those with more acute conditions [3].

It is a public health problem [4] because it significantly increases the length of hospital stay, but also the rate of relapse and rehospitalization [5]. In this context, it is essential to understand and situate behaviors such as non-adherence within a multifactorial system and complex relationships to best achieve the goals of the health sciences.

Numerous experimental and observational studies, mainly in developed countries, have demonstrated the importance of compliance as a major factor in therapeutic efficacy [6]. Non-compliance can sometimes have positive short-term effects for the patient, such as the disappearance of side effects or a reduction in drug-related costs. However, from a medical point of view, it can lead to the loss of immediate and long-term benefits, such as the recurrence of symptoms, the occurrence of complications, the risk of relapse and the emergence of resistance, as well as an increase in rehospitalizations. Numerous experimental and observational studies, mainly in developed countries, have demonstrated the importance of compliance as a major factor in therapeutic efficacy [6]. In addition, taking or not taking medication can become a matter of negotiation for patients, giving them a sense of power and social benefits. In economic terms, the impact is measured in terms of direct costs associated with care, indirect costs (time off work due to deterioration in health) and intangible costs (deterioration in perceived health). In addition, economic losses due to reduced productivity and absenteeism can also be significant. It is therefore crucial to consider the total economic impact of health problems to implement effective prevention policies and ensure a sustainable health system [7] [8]. In addition, taking or not taking medication can become a matter of negotiation for patients, giving them a sense of power and social benefits. In economic terms, the impact is measured in terms of direct costs associated with care, indirect costs (time off work due to deterioration in health) and intangible costs (deterioration in perceived health). In addition, economic losses due to reduced productivity and absenteeism can also be significant. It is therefore crucial to consider the total economic impact of health problems to implement effective prevention policies and ensure a sustainable health system [9] [10]. In changing societies like Côte d'Ivoire, the risk has increased. The places and causes of crises are many and varied. The sick are increasingly children, adolescents, adults, women, men, immigrants, indigenous people, illiterates, schoolchildren. Modern doctors, traditional healers, diviners, religious people and herbalists provide mental health care.

In this context, our study has highlighted the factors that lead to poor adherence to medication among psychiatric patients. The specific objectives of this study were to describe the socio-demographic characteristics of the patients studied, to assess patient compliance using the MARS questionnaire and, finally, to establish the relationship between the socio-demographic characteristics of the patients and their level of compliance using bivariate analysis.

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## 2. Materials and methods

### 2.1. Setting of the study

Our study took place in the mental health unit of the Bingerville Psychiatric Hospital, a community on the outskirts of Abidjan. Bingerville Psychiatric Hospital is the leading psychiatric institution in Côte d'Ivoire.

### 2.2. Study subjects

The subjects of our study were psychiatric patients. Included in the study were stabilized patients, men or women aged 18 years or older, consenting to the study, outpatients and inpatients on at least their second admission to the Bingerville Psychiatric Hospital.

Excluded from the study were non-stabilized patients, patients who did not consent to the study, patients who had never been hospitalized and patients who were on first admission to the Bingerville Psychiatric Hospital.

### **2.3. Data collection material**

The technical material used to collect the data was a survey form, but the patients' medical records were also consulted.

### **2.4. Survey form**

The survey form was designed in three parts (Appendix 1):

-First, the first part of the form allowed us to collect socio-demographic information about the patients (sex, age, ethnic group, level of education, occupational and marital status), but also information about their current treatments and dosages.

-The second part is the 10-item MARS questionnaire, translated into French from the original English version by Thompson et al. (2000). It is a self-report questionnaire with two possible answers: "YES" or "NO". The questions relate on the one hand to the patients' behavior about their treatment and on the other hand to their subjective perception of the treatment. The advantages are speed of administration and ease of use in both clinical and research settings. This questionnaire groups its items into three main components, which are:

- The behavioral component of compliance (items 1, 2, 3, and 4);
- The patient's attitude towards taking medication (items 5, 6, 7, and 8);
- The side effects associated with the patient's attitude towards psychotropic medication (items 9 and 10).

The items are scored 1 for a 'NO' response and 0 for a 'YES' response, except for items 7 and 8 which are scored 0 for a 'NO' response and 1 for a 'YES' response. The total score ranges from 0 to 10. The higher the score, the more compliant the patient is with their treatment; a total score below 5 indicates non-compliant patients.

-The third part is a hetero-questionnaire that lists the most common reasons for poor adherence or discontinuation. As in the first questionnaire, there are two possible answers: "YES" or "NO". The answers collected give an idea of the reasons why a patient may not adhere to their treatment.

### **2.5. Medical records**

Medical records were consulted to obtain further information (examination results, consultation and hospitalisation reports, therapeutic prescriptions carried out, etc.) on hospitalised patients.

### **2.6. Methods**

This is a cross-sectional study with an analytical objective that took place from 6 January to 3 February 2020 at the Bingerville Psychiatric Hospital. It was carried out in the HPB archives and involved 60 patients selected based on whether they were inpatients or outpatients. To be included in the study, it was not necessary for the interned patients to be at the hospital for the first time because, as they were interned, the nurses were responsible for their medication.

Using an invitation form (Appendix 2), all patients were given a brief presentation of the study before giving their consent. Subjects of both sexes were selected. We administered the different questionnaires to them, starting by collecting some socio-demographic information (age, sex, and ethnic group, professional and marital status). We also looked at the patients' most recent medical prescriptions to find out what treatment they were taking and how much they were taking. They were then given the first questionnaire (MARS test), which makes it possible to distinguish between compliant and non-compliant patients. Finally, they were given the second questionnaire, which lists the most common reasons for poor follow-up or discontinuation of treatment. The interviews with the patients took place in a room and all their answers were collected in the absence of the treating staff, to avoid any influence on their part. The questions were closed, their completion was based on the patients' answers, and they had the choice between two answers "YES" or "NO".

### **2.7. Collected data**

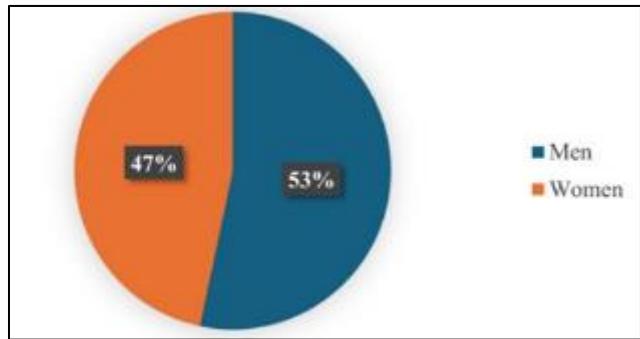
The data collected was processed using software (Word, Excel and Statistica). Excel was used to make graphs and cross-references between socio-demographic parameters and compliance; the significance of the cross-references made was verified with Statistica software. Chi  $^2$  ( $X^2$ ) was used for this purpose. If  $X^2 < 4$ , the difference is not significant; if  $X^2 \geq 4$ , the difference is significant, and the significance level  $p$  is less than or equal to 0.05.

### 3. Results

#### 3.1. Socio-demographic data

##### 3.1.1. Gender

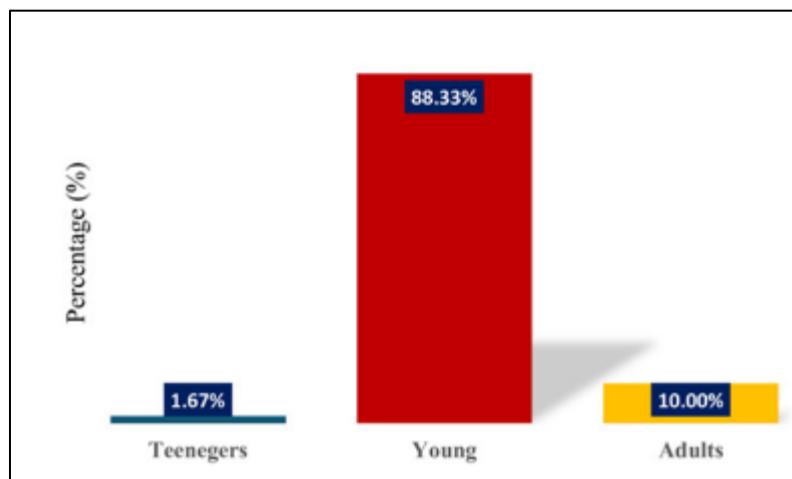
The two sexes were represented and distributed as follows: 53% male patients and 47% female patients (Figure 1)



**Figure 1** Sample distribution by gender

##### 3.1.2. Patient age

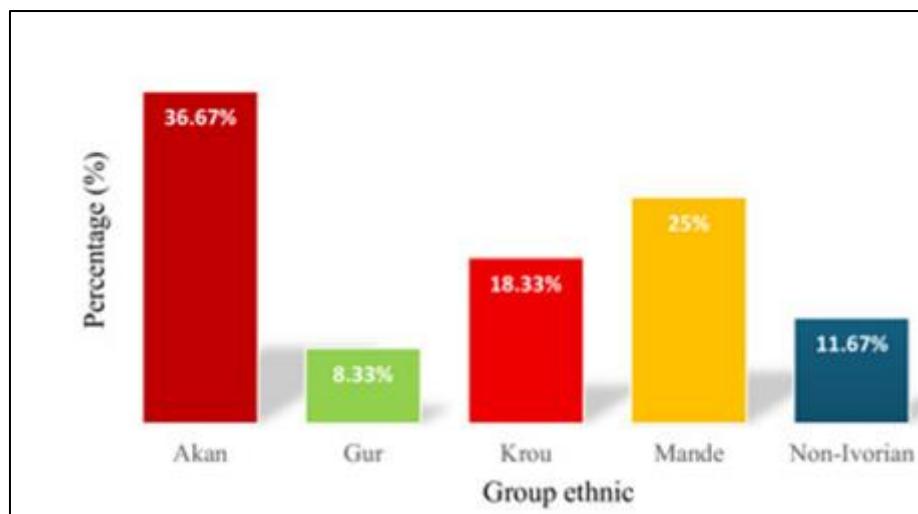
The average age of the patients was 33 years, with extremes ranging from 17 to 66 years. The patients could be divided into 3 age groups: adolescents (under 18 years), young people (18 to 40 years) and adults (over 40 years). Adolescents predominated with a percentage of 88.33%. Adults represented 10% of the sample. The adolescent class had only one case or 1.67% of the sample (Figure 2).



**Figure 2** Distribution of the sample by age group

##### 3.1.3. Ethnic groups

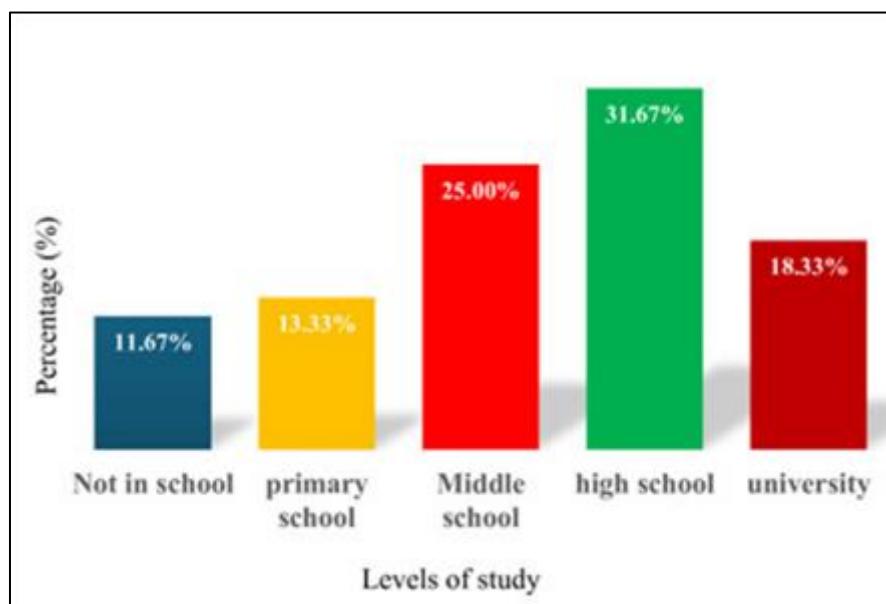
The patients were divided into two categories according to their ethnicity (Figure 3). The patients, representing 83.33% of the sample, were divided into 4 ethnic groups (Akan, Gur, Krou and Mande). The Akan were in the majority with 22 representatives. The Gur had only 5 representatives. The Krou had 11 patients. There were 15 Mande patients. The minority was represented by non-Ivorian patients, who numbered 7, i.e. 11.67% of the sample.



**Figure 3** Sample distribution by ethnic group

#### 3.1.4. Educational level

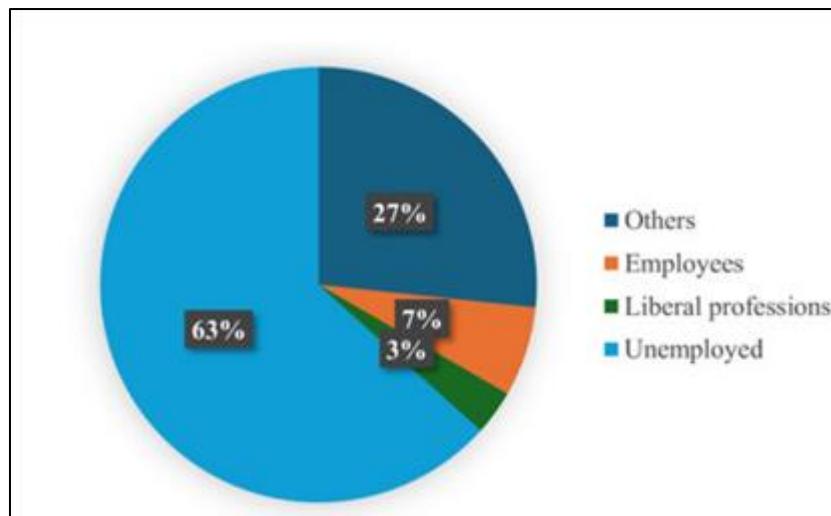
In the sample, 11.67% of patients had never been to school. 13.33% had primary education, 25% and 31.67% had lower and upper secondary education respectively. Patients with university education represented 18.33% of the sample (Figure 4).



**Figure 4** Distribution of the sample according to level of study

#### 3.1.5. Employment status

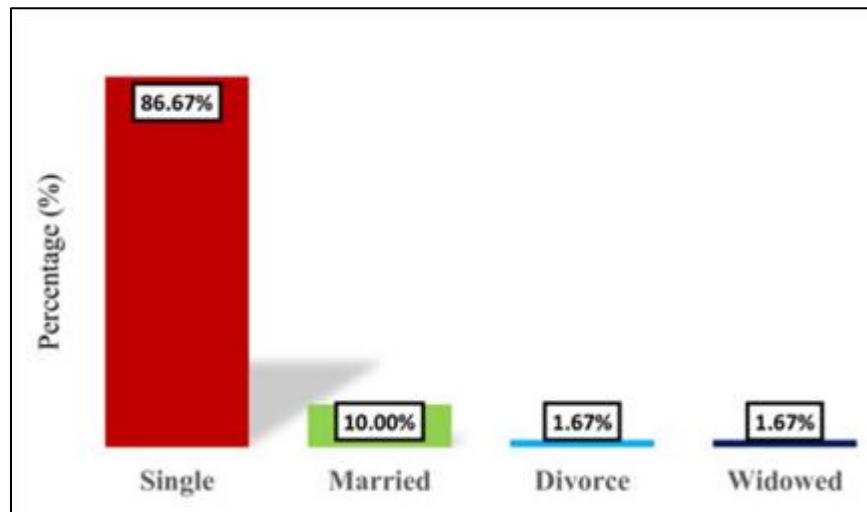
63% of the patients were unemployed, 7% were civil servants, 3% were self-employed and 27% were in other occupations (Figure 5)



**Figure 5** Distribution of the sample according to professional situation

### 3.1.6. Marital status

Single patients represented most of the sample with a rate of 86.67%. Only 10% of the patients were married (6 cases). There was only 1 divorced patient and 1 widowed patient (Figure 6).

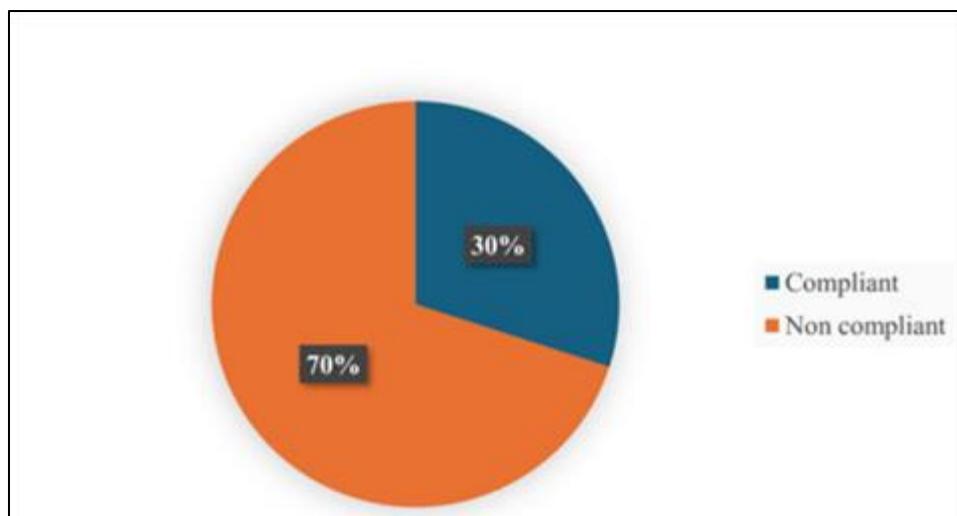


**Figure 6** Sample distribution by marital status

## 3.2. Compliance according to questionnaires

### 3.2.1. Compliance according to the MARS questionnaire

According to the MARS questionnaire, our sample was distributed with a clear predominance of non-compliant patients. In fact, 70% of the study population had a general score of less than 5 and were considered non-compliant. Compliant patients represented only 30% of the study population, with a general score of 5 or higher (Figure 7).



**Figure 7** Results of compliance assessment using the MARS questionnaire

### 3.2.2. Reasons for non-compliance according to the MARS questionnaire

The assessment of compliance showed that 7/10 of the patients, or 42 of the 60 patients studied, were not compliant with their treatment, with a general score of less than 5. In general, the population studied was non-compliant with their treatment, with an average score of 4.683. According to Table I, more than 2/3 of these patients cited the following as the main reasons for non-compliance: experiencing side effects after taking their medication, refusing to let their body and mind be controlled by their medication, and forgetfulness.

**Table 1** MARS self-assessment questionnaire

**Table I : MARS self-questionnaire**

N°	QUESTION	Number of Yes		Number of No	
		Effectifs	%	Effectifs	%
A1	Have you ever forgotten to take your medication?			20	33,33
A2	Are you ever careless about taking your medication?	29		31	51,66
A3	When you feel better, do you ever stop taking your medication?	34		26	43,33
A4	If your condition worsens while taking your medication, have you ever stopped taking it?	14		46	76,66
A5	I only take my medication when I'm ill	10		50	83,33
A6	It seems unnatural for my mind and body to be controlled by medication.	42		18	30
A7	My thoughts are clearer with medication	21	35	39	
A8	By taking my medication, I can avoid getting sick again	49	81,66	11	
A9	With medication I feel strange.	48		12	20
A10	My medication makes me feel tired and heavy	52		8	13,33

### 3.2.3. Reasons for non-adherence according to the Hetero questionnaire

In addition to some of the reasons already mentioned in the MARS questionnaire, the hetero questionnaire (Table II) showed that a large majority of patients did not adhere well to their treatment for the following reasons: the effects of drowsiness and fatigue induced by psychotropic drugs, which prevent them from working or attending normal classes, and the high cost of certain drugs. Patients added to these factors the fact that long-term medication is very tiring and painful, the fact that they do not consider themselves to be ill, and the fear of becoming dependent on medication.

**Table 2** Hetero questionnaire of the cause of poor treatment monitoring

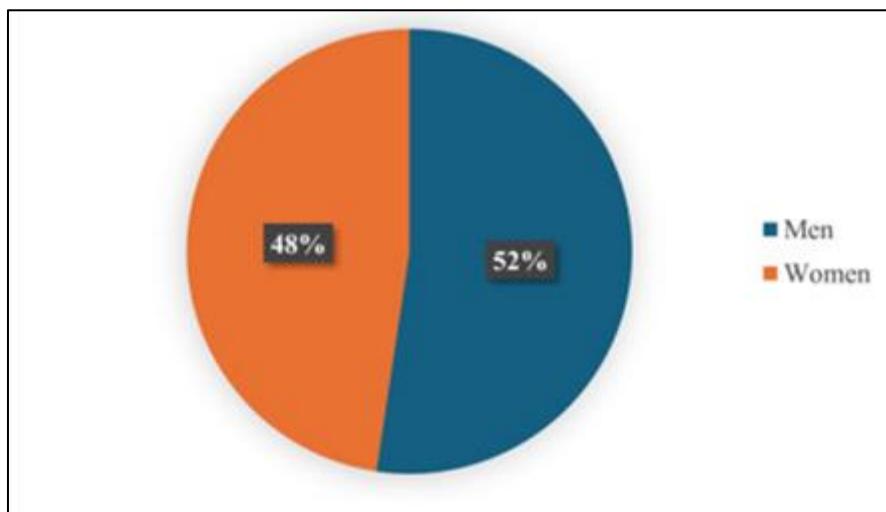
N°	QUESTIONS	YES	NO
B1	You feel cured and no longer need medication?	20	40
B2	You don't consider yourself ill?	39	21
B3	Didn't you feel the beneficial effect of the medication?	19	41
B4	Do you think drugs are too expensive?	46	14
B5	Do you find taking long-term medication very tiring and painful?	42	18
B6	Can't find anyone to help you take your medication?	8	52
B7	Worried about becoming dependent on medication?	37	23
B8	Do you consider medication to be a drug rather than a cure for your illness?	17	43
B9	You think the treatment is too heavy?	31	29
B10	Do you consider medicines to be drugs forbidden by religion?	1	59
B11	Do you find that medication makes you drowsy and tired, and therefore unable to work or study?	47	13
B12	Because of side effects (tremor, torticollis, rigidity.....)?	25	35
B13	Do you believe that drugs are responsible for neurovegetative disorders such as blurred vision, weight gain, vertigo and dry mouth?	33	27
B14	Do you find that drugs have an effect on your sexuality?	8	52
B15	You use a toxic substance that helps you better than medication (cannabis, alcohol, solvents).	12	48
B16	Do you think psychotherapy is enough?	29	31
B17	You think life isn't worth living, so what's the point of trying to get out of the disease?	6	54
B18	You think your doctor is no good and you don't feel comfortable with him or her?	8	52
B19	Do you find that your doctor doesn't listen to you enough, doesn't understand you or is unavailable?	16	44
B20	You think your doctor is incompetent and you don't trust his prescriptions?	5	55
B21	Do you change doctors frequently?	18	42
B22	Lack of information about your illness and prescribed medication	23	37

B23	Does the idea of taking medication prescribed by a psychiatrist bother you?	22	38
B24	Do you care what other people think if you take medication prescribed by a psychiatrist?	28	32
B25	Is your family watching you too closely and forcing you to take the treatment?	12	48
B26	Another reason?	21	39

### 3.2.4. Compliance by socio-demographic parameters

#### Cross-sectional relationship between gender and poor compliance

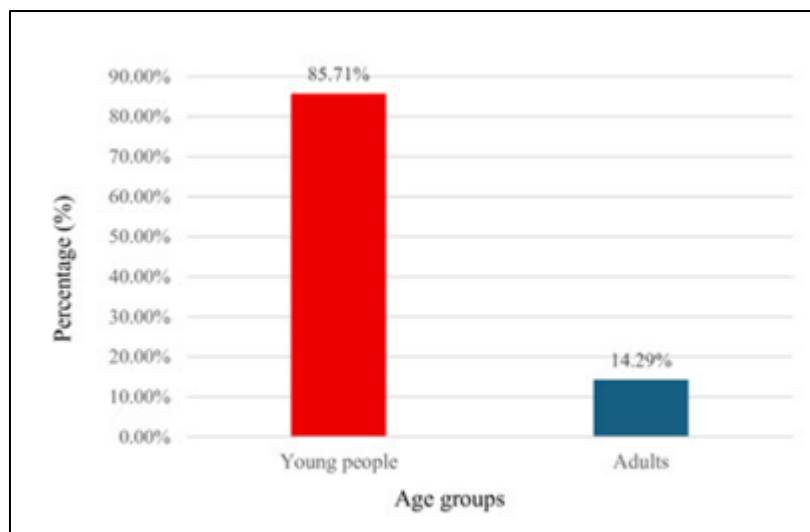
Both sexes had approximately the same level of noncompliance. Of the 42 non-compliant patients, 52% were men and 48% were women, i.e. 22 and 20 cases of non-compliance were observed in men and women respectively (Figure 8). This difference is not significant as  $X^2 = 0.00 < 4$  and  $p = 0.9498 > 0.05$ .



**Figure 8** Relationship between gender and poor compliance

#### Correlation between age group and poor compliance

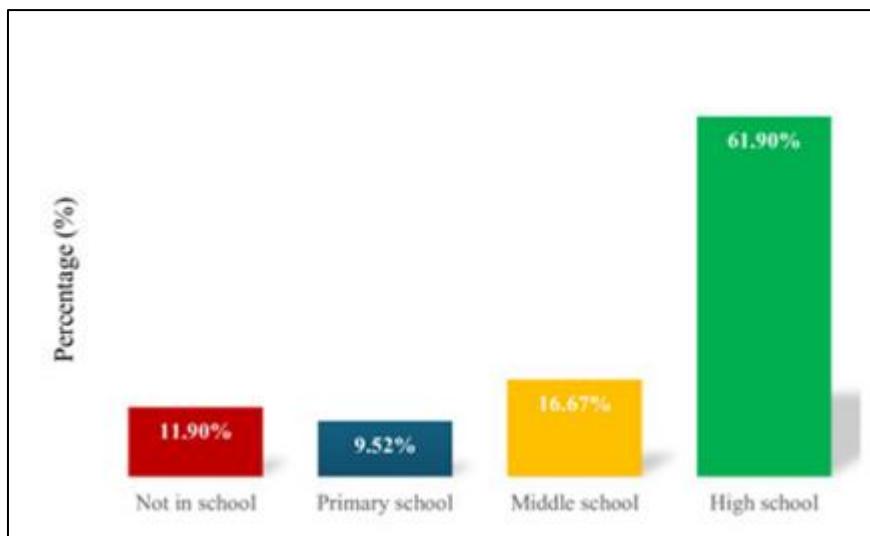
Non-compliance is more common among young people (18 to 40 years old), who account for 85.71% of cases. Adults (41 to 66 years old) follow them, who account for 14.29% of cases of non-compliance. The juvenile category was not considered because of the single case representing it (Figure 9). This difference is significant as  $X^2 = 13.67 > 4$  and  $p = 0.0002 < 0.05$ .



**Figure 9** Relationship between age group and poor compliance

#### Correlation between educational level and poor compliance

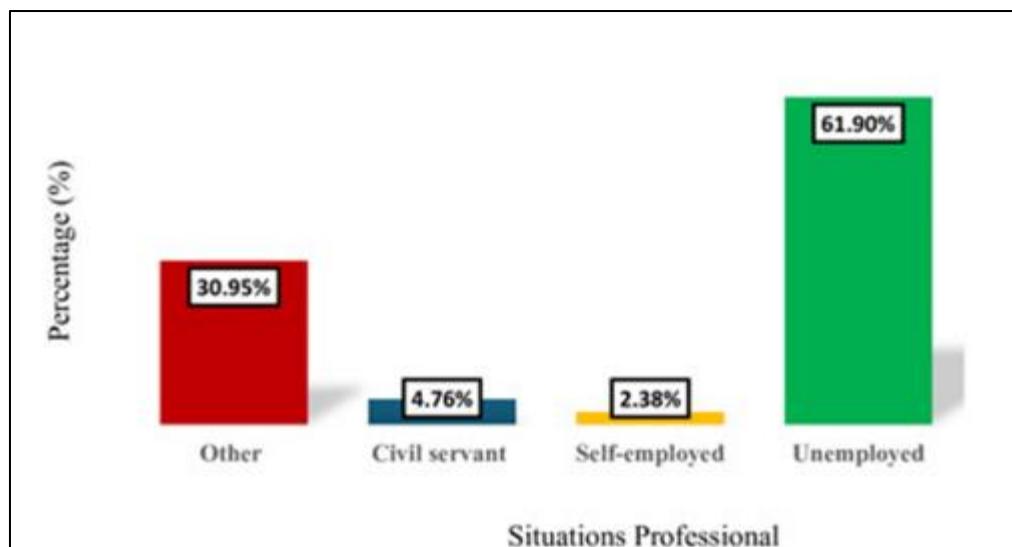
Patients with secondary education are the least compliant with a rate of 61.90% (13 cases for the 1st cycle and 13 cases for the 2nd cycle). Patients with a university education follow with 16.66% of cases of non-compliance (7 cases), followed by patients with no education with 11.90% of cases. In the last position, we have patients with a primary level of education, who have a rate of 9.52% of cases of noncompliance, or 4 cases (Figure 10). These differences are not significant as  $X^2 = 1.15 < 4$  and  $p = 0.2827 > 0.05$ .



**Figure 10** Relationship between education level and poor compliance

#### Cross-section between professional situation and poor compliance

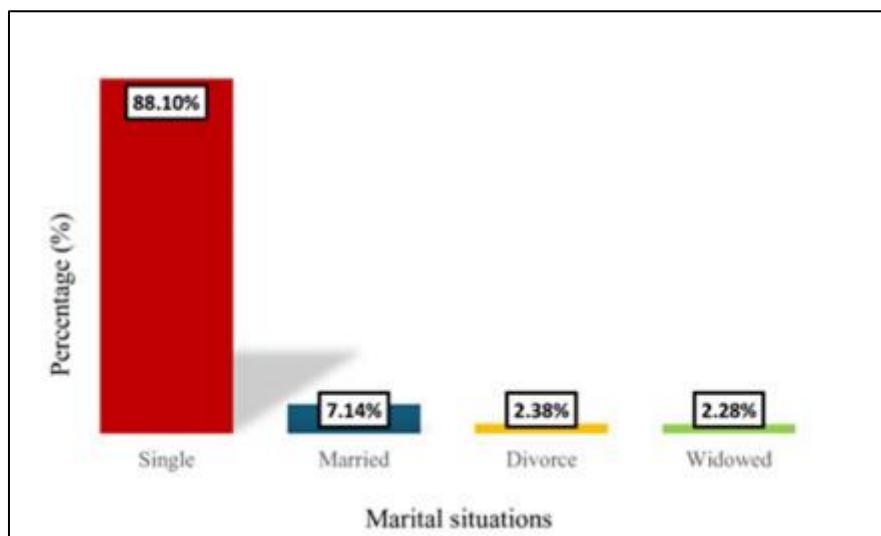
More than half of the 42 non-compliant patients were unemployed with 26 cases or 61.90%. 4.76% were civil servants, 2.38% had a liberal profession, 30.95% worked in order fields (Figure 11). Statistically these differences are not significant between  $X^2 = 1.15 \leq 4$  and  $p = 0.2827 \geq 0.05$ .



**Figure 11** Relationship between professional education and poor compliance

Cross-sectional relationship between marital status and non-compliance

Of the 42 non-compliant patients, 88.10% or 37 were single, 7.14% were cohabiting or married and 2.38% were divorced or widowed (Figure 12). These differences are statistically significant as  $X^2 = 15.78 \geq 4$  and  $p = 0.0001 \leq 0.05$ .



**Figure 12** Relationship between professional situation and poor compliance

#### 4. Discussion

In our sample, according to the classification of the MARS questionnaire, we found that 70% of patients had poor compliance. This rate of non-compliance is lower than that observed by [9], who found a rate of 79% by assessing treatment compliance in patients with schizophrenia. Looking at the different responses of the patients, we found that more than 2/3 of them answered "yes" to four questions: question A1, which deals with the possibility of having already forgotten to take medication; question A6, which deals with the rejection of the idea that the mind and body are controlled by medication; questions A9 and A10, which deal with the side effects orchestrated by the treatment. The factors brought into play by answers A9 and A10 have already been mentioned in many studies, such as those by [10] or [11]. Indeed, compliance may be affected by the side effects of the proposed therapies. Neuroleptics such as chlorpromazine, haloperidol, levomepromazine can cause a decrease in alertness, which can lead to a physical and mental slowdown or even a feeling of fatigue. They can also cause excessive salivation and neurological disturbances such as stiffness of the gait, difficulty in performing certain movements or even involuntary facial movements.

In the Hetero questionnaire, at least two-thirds of patients cited the high cost of medicines, the inconvenience of long-term use, not feeling sick and the fear of becoming dependent on medicines as reasons for poor adherence. Most studies of medication adherence mention adverse effects, but few studies have attempted to assess the relationship between quality of medication adherence and the price of these medications. However, [12] highlighted that the cost of treatment may affect adherence in people from disadvantaged socio-economic backgrounds. The first part of our questionnaire allowed us to record the socio-demographic characteristics of the patients as well as the names and prices of their medicines. It appears that the most prescribed drugs were Largactil, Haldol, Temesta, Valium, Neurotop, Tegretol, Modecate, Nozinan, Depamide. The average price of these drugs is 5,415 CFA francs. Nozinan, for example, can cost up to 11,035 CFA francs, while some patients are prescribed 2 to 3 different treatments, which are renewed on average every two weeks. For patients with an unemployment rate of around 63.33%, regular prescription renewals could be a challenge that is not always manageable. Furthermore, given that psychiatric patients often must take several treatments at repeated intervals, it is possible that this complexity of treatment could have a negative impact on their attitude towards taking their medication. [13] have already identified this complexity of treatment as a factor in poorer compliance. In addition, as treatment for psychiatric disorders is a lifelong process, it is very likely that after a few years patients will experience a degree of fatigue with medication. It is therefore reasonable to assume that the longer a patient spends on treatment, the greater the likelihood of poor compliance over time. Poor compliance related to not seeing oneself as ill is a factor that has already been mentioned in the literature. It is related to the lack of insight, i.e. the patient's perception of the mental illness. [14] have already mentioned this parameter. According to him, patients' insight influences their ability to form a therapeutic alliance. Indeed, a patient who does not consider himself to be ill will not see the need to follow the letter a treatment that may have been imposed on him by those around him. The relationship between compliance and socio-demographics is mixed in literature. [15] showed in their studies that there was no relationship between compliance and age, gender, socio-economic level, etc. On the other hand, [16] shows that age, socio-cultural and educational level is a factor influencing compliance. In our study, age and marital status would be the factors that significantly influence the quality of compliance. However, the non-significance of the other parameters could be related to the small size of the samples. According to the studies by [17] and [18], living alone is a factor that reduces the level of compliance, which is consistent with our results. Celibacy appears to be a factor in poorer patient compliance, perhaps because patients who do not have a spouse to make sure they take their medication properly or to reprimand them for poor follow-up may sometimes be tempted to neglect their treatment. The study also showed that unemployed patients had a high rate of non-adherence. This could be linked to a lack of financial resources. Indeed, being unemployed and dependent on a parent could sometimes make it difficult for some patients to renew their treatment.

## 5. Conclusions

It appears that 70% of Bingerville Psychiatric Hospital patients do not adhere properly to their treatment. The main factors highlighted are related to the treatment (side effects, price, and duration) and to the patients themselves (awareness of the disorder, age, professional and marital status). These results highlight the need for health care teams to implement psychotherapies that require patients to be vigilant and aware of the consequences that poor adherence could have. To better address the difficulties associated with the adherence of psychiatric patients in Côte d'Ivoire, it would be interesting for future studies to include a larger number of patients and to develop questionnaires that take more account of African realities, especially since adherence can be linked to socio-demographic parameters. It will be important, among other things, to consider ethno-social factors and the spiritual and/or religious dimension of mental illness. These studies could also focus on the relationship between the type of psychiatric disorder and the degree of therapeutic alliance.

## Compliance with ethical standards

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### *Disclosure of conflict of interest*

All the authors have declared that they have no conflicts of interest.

*Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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