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Research Article

# Post-Traumatic Stress Disorder (PTSD) in Irregular Migrants Back to Ziguinchor (Senegal): Prevalence and Associated Factors

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## Abstract

*Introduction:* The migration of the Senegalese to the Eldorado has continued to increase since 2006. It has become massive and clandestine, and candidates do not hesitate to use illegal and dangerous ways and means, thus exposing their lives and engaging their physical and psychological integrity. *Objectives:* Determine the prevalence of PTSD in migrants and identify the factors associated with its occurrence. *Methodology:* A descriptive and analytical transversal study on migrants had been carried out in Ziguinchor over the period from January 1 to July 31, 2024. The collection of data was done on the basis of the PCL-5 (PTSD Checklist for DSM-5) evaluation scale and a pre-established questionnaire. The entry was made on Excel spreadsheet and statistical analysis with the STATA 18 software. *Results:* A total of 41 migrants had been surveyed. The study population was made up of men (92.7%). The average age was 36.9 years ± 9.3. Migrants had attended school (70.7%) and had professional activity before departure (92.7%). They were craftsmen (39.0%) and single without children (46.3%). Motivation to emigration was linked to financial difficulties (85.4%). Italy was the chosen destination 58.5%. The privileged travel route was terrestrial (70.7%). Thirty-five migrants had encountered difficulties during the trip. The return to the country was against their will (63.4%). The prevalence of the PTSD was 31.7%. Its occurrence was favored by borrowing the land route, by the difficulties linked to food and extortion. Literacy was a protective factor. The PTSD impacted on social reintegration but had no impact on professional reintegration and the desire to return. *Conclusion:* The study has shown a fairly high frequency of PTSD in migrants related to traumatic events experienced during the trip. It is therefore necessary to assess all the migrants on the health level and to ensure them a medico-psychosocial care.

## Keywords

PTSD, Migrant, Irregular, Senegal

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# 1. Introduction

The migration of Senegalese to different horizons, particularly to Europe, is an ancient phenomenon that has continued to increase since the years 2006-2007. It has become massive and clandestine and the increasingly young candidates do not hesitate to use illegal and dangerous ways and means, thus exposing their lives and engaging the physical and psychological integrity of their person.

Emigration as such is not traumatic but certain events experienced during migration can cause psychological trauma in migrants.

Migrants are undergoing all kinds of violence during their journey, they are victims of sexual violence, bodily abuse, rackets, slavery and imprisonment orchestrated by smugglers and armed gangs. They are also faced with difficult and trying situations such as separations from loved ones, the losses of the companions during the trip, the shipwrecks in the sea etc.

In 2020, around 420 people were died on the Migration Road from Senegal to Spain according to the IOM (International Organization for Migration) migration ratio [1]. In Africa there are few studies being interested in the mental health of migrants and in Senegal we did not find any study carried out on the mental health of the return migrants in general and on the state of post-traumatic stress (PTS) in particular. The objectives were to determine the socio-demographic profile of the underground migrant of return, to determine the prevalence of the post-traumatic stress of stress in these migrants and to identify the factors associated with the occurrence of the PTSD.

# 2. Methodology

## 2.1. Study Framework

This work was carried out in Ziguinchor in southwest Senegal, about 450 km from the Dakar capital.

## 2.2. Type and Period of Study

This is a descriptive and analytical transversal study which took place over a period of 7 months going from January 1, 2024 to July 31, 2024.

## 2.3. Study Population

Our study focused on Senegalese irregular migrants back in Senegal residents in the Ziguinchor region at the time of the investigation.

### 2.3.1. Inclusion Criteria

We have included all Senegalese irregular migrants back in the country over the age of 15 and residing in the Ziguinchor region.

### 2.3.2. Non-Inclusion Criteria

We have not retained in our study the illegal migrants returning to the country and who:

1) Don’t want to be part of the study.
2) Are bearers of neuropsychiatric affection which can alter their discernment.

## 2.4. Data Collection

The collection of socio-demographic data, clinical and those related to the journey was made on the basis of the evaluation scale by the PCL-5 and a pre-established, tested and validated questionnaire. The list of these migrants and their contacts were obtained from NGOs (Non-Government Organization) that help migrants, the Senegalese Red Cross and the Reception, Orientation and follow-up office (BAOS) of the Senegalese from the outside and migrants.

## 2.5. Study Variables

1) Socio-demographic data (age, sex, matrimonial situation, level of education, professional activity, persons supported by the migrant)
2) Data on the journey (motivations of the journey, sources of information, journey way, country of destination, difficulties encountered, etc.)
3) Clinical data (psychiatric history, illness during the journey, PTSD 's presence)
4) Data on management (psychological aid, psychiatric treatment, aid to social reintegration)

## 2.6. Data Analysis

The data was entered on Excel spreadsheets and processed for a statistical analysis with the STATA 18 software. The results were presented in the form of tables and proportions.

# 3. Ethical Considerations

The free and informed consent of migrants had been collected. The anonymity of the participants is respected and the data entered is secure as well as any information that can harm physical, psychological, and/or moral integrity.

# 4. Results

## 4.1. Descriptive Study

### 4.1.1. Socio-Demographic Data

The average age of return migrants was 36.9 ± 9.3 with extremes aged 24 and 60. The median was 35 years. The most represented age group was that of [20-39-year old] with 68.3% of migrants (n = 28) against 31.7% (n = 13) for those aged 40

and over.

There was a clear male predominance at 92.7% (n = 38) with a sex/woman sex of 12.6.

*Table 1. The marital situation of migrants (n = 41).*

| Marital | Workforce | Frequency (%) |
|---|---|---|
| Single without children | 19 | 46,3 |
| Single with children | 7 | 17,1 |
| Married with children | 10 | 24,4 |
| Married without children | 4 | 9,8 |
| Widower | 1 | 2,4 |
| Total | 41 | 100,0 |

The majority of migrants interviewed were single without children 46.3%% (n = 19) followed by the newlyweds with children 24.4% (n = 10).

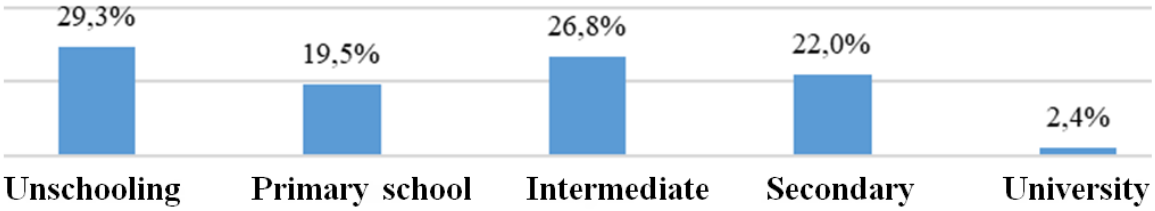


*Figure 1. Distribution of migrants as a function of the level of education.*

Twenty-nine migrants (70.7%) had attended formal school. Those who reached the intermediate education represented 26.8% (n = 11) of the population.

Thirty-eight migrants had a professional activity generating income before the journey (92.7%) including 39.0% of craftsmen.

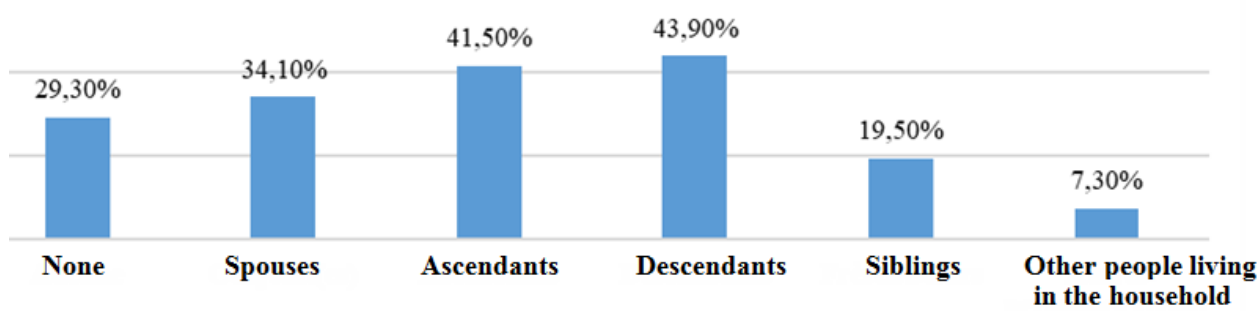


*Figure 2. Distribution of migrants according to treated persons (n = 41).*

Before undertaking their journey, 70.7% (n = 29) of migrants had people at their expense. It was mostly descendants (43.9%, n = 18).

### 4.1.2. Journey Data

*Table 2. Distribution of migrants according to motivations (n = 41).*

| | Workforce | Frequency (%) |
|---|---|---|
| Unemployment | 1 | 2,4 |
| Financial difficulties | 35 | 85,4 |
| Success of another migrant | 13 | 31,7 |

| | Workforce | Frequency (%) |
|---|---|---|
| Desire for a better life | 4 | 9,8 |

The motivation for migration most cited by migrants was the financial difficulties in 85.4% of cases (n = 35).

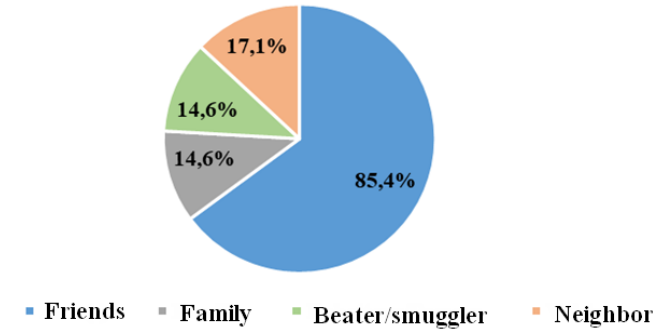


***Figure 3.*** *Distribution of migrants according to information sources (n = 41).*

Information on the journey had been collected at 85.4% (n = 35) from friends for only 14.6% (n = 5) from smugglers and beaters.

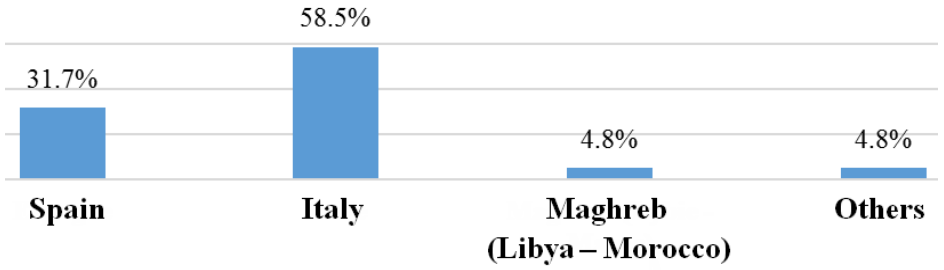


***Figure 4.*** *Distribution of migrants according to the destination (n = 41).*

Italy and Spain were the most popular destinations with 58.5% (n = 24) and 31.7% (n = 13) of migrants respectively.

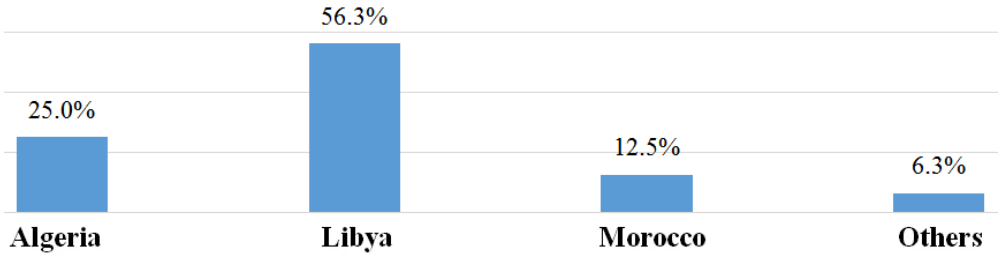


***Figure 5.*** *Distribution of migrants according to the end of the journey (n = 32).*

Among the migrants interviewed, 78% (n = 32) had not reached their initial destination. The most cited area where ends the trip was Libya with 56.3% (n = 18) followed by Algeria with 25% (n = 8).

Regarding the reception planned in the country of destination, 46.3% (n = 20) of migrants had a host who was waiting for them.

The privileged travel routes were the land route with 70.7%

(n = 29) and the maritime route with 17.1% (n = 7).

*Table 3. Distribution of migrants according to the difficulties encountered (n = 35).*

| | Workforce | Frequency (%) |
|---|---|---|
| Food | 26 | 74,3 |
| Climate | 25 | 71,4 |
| Extortion | 25 | 71,4 |
| Violence from the border police | 22 | 62,9 |
| Violence from armed gangs | 18 | 51,4 |
| Disease | 14 | 40,0 |
| Cleanliness | 10 | 28,6 |
| Removal/kidnapping/imprisonment | 5 | 14,3 |
| Orientation | 5 | 14,3 |
| Mystical events | 3 | 8,6 |

A majority of migrants (85.4% n = 35) had encountered difficulties during their journey. The most cited difficulties were those related to food (74.3% n = 26) followed by those linked to climate and extortion (71.4% n = 25).

Regarding the return method, 63.4% (n = 26) of migrants had returned against their will.

*Table 4. Distribution of migrants according to the cause of the return (n = 41).*

| | Workforce | Frequency (%) |
|---|---|---|
| Personal and family causes | 10 | 24,4 |
| Administrative causes | 30 | 73,2 |
| Environmental cause | 1 | 2,4 |
| Total | 41 | 100,0 |

Personal and family causes: desire to return, discouragement, death of a loved one, illness
Administrative causes: forced repatriation + administrative disorder
Environmental causes: lack of crossing of the Mediterranean

The migrants who decided to return on their own will, had mainly mentioned their desire to return to live in Senegal or because of the death of a loved one (24.4%, n = 10).

*Table 5. Distribution of migrants according to time elapsed from the return (n = 41).*

| | Workforce | Frequency (%) |
|---|---|---|
| Under 2 years old | 6 | 14,6 |
| Between 2 and 4 years old | 6 | 14,6 |
| 5 years or more | 29 | 70,7 |
| Total | 41 | 100,0 |

The majority of the migrants with which we have been maintained returned for more than 5 years: 70.7% (n = 29).

*Table 6. Distribution of migrants according to the feeling of the family on return (n = 41).*

| | Workforce | Frequency (%) |
|---|---|---|
| Relief | 21 | 51,2 |
| Regret to see them come back without financial success | 17 | 41,5 |
| Uninformed family | 3 | 7,3 |

The feeling of the families of migrants on the return of the journey was dominated at 51.2% (n = 21) by relief at the sight of the loved one.

### 4.1.3. Clinical Data

None of the migrants had a personal or family psychiatric history.

The journey and the return had been marked for 56.1% (n = 23) of migrants by the occurrence of various disorders dominated by the alteration of the general state (19.5%, n = 8) and the occurrence of depressive syndrome after the return (12.2%, n = 5).

At the end of the assessment of migrants by the PCL-5, 31.7% (n = 13) of migrants presented a proven PTSD 68.3% had no PTSD.

### 4.1.4. Data on Support and Reintegration

Only 14.6% (n = 6) of migrants had declared that they had been assessed on the health level and taken care of when they return.

This care had been ensured in 50% (n = 3) of cases by helping NGOs, the rest having been taken care of by the family, a friend and local authorities.

Three migrants (7.3%) said it had benefited from psychological care.

Social reintegration had been judged good by 80.5% (n = 33) of migrants and professional reintegration had been tried good by 68.3% (n = 28) of migrants.

*Table 7. Distribution of migrants according to the desire to return (n = 41).*

| | Workforce | Frequency (%) |
|---|---|---|
| Lack of desire to return | 15 | 36,6 |
| Desire to return by legal way | 11 | 26,8 |
| Want to go back whatever the way | 15 | 36,6 |
| Total | 41 | 100,0 |

About 36.6% (n = 15) of the return migrants questioned wanted to go back whatever the way to take.

## 4.2. Analytical Study

*Table 8. Occurrence of PTST as a function of sex (n = 41).*

| Sex | | PTSD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Female | Workforce | 1 | 2 | 3 | 0,0040 | 0,950 | 1,1 [0,1-13,1] |
| | % | 33,3 | 66,7 | 100,0 | | | |
| Male | Workforce | 12 | 26 | 38 | | | |
| | % | 31,6 | 68,4 | 100,0 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100,0 | | | |

Only one of the women who have attempted the journey (33.3%) was the victim of a PTSD against 31.6% of men (n = 12) having undertaken the journey. The P-Value is greater than 0.05, the independence hypothesis is not rejected There is therefore no association between sex and the occurrence of PTSD in our study population.

*Table 9. Occurrence of PTSD as a function of school attendance (n = 41).*

| Formal school attendance | | PTSD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Attendance | Workforce | 6 | 23 | 29 | 5,35 | 0,02 | 0,19 [0,04-0,80] |
| | % | 20,7 | 79,3 | 100,0 | | | |
| No attendance | Workforce | 7 | 5 | 12 | | | |
| | % | 58,3 | 41,7 | 100,0 | | | |

| Formal school attendance | | PTSD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100,0 | | | |

Among the migrants who have not attended the formal school, there is the PTSD occurrence in 58.3% (n = 7) of cases against 20.7% (n = 6) of occurrence in those who attended the formal school. The P-Value is less than 0.05, the independence hypothesis is rejected. People who had frequented school were 5.26 times better protected against PTSD than people who had not attended it.

The comparison (P-Value et OR) is made for the land route vs the other ways. The comparison (P-Value et OR) is made individually for status according to the others.

***Table 10.*** *Occurrence of PTSD according to the matrimonial situation (n = 41).*

| Marital status | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Single without children | Workforce | 5 | 14 | 19 | 0,48 | 0,491 | 0,63 [0,16-2,39] |
| | % | 26,3 | 73,7 | 100,0 | | | |
| Married with children | Workforce | 2 | 8 | 10 | 0,83 | 0,36 | 0,45 [0,08-2,53] |
| | % | 20,0 | 80,0 | 100,0 | | | |
| Married without children | Workforce | 3 | 1 | 4 | 3,84 | 0,05 | 8,10 [0,75-87,23] |
| | % | 75,0 | 25,0 | 100,0 | | | |
| Single with children | Workforce | 2 | 5 | 7 | 0,04 | 0,85 | 0,84 [0,14-5,01] |
| | % | 28,6 | 71,4 | 100,0 | | | |
| Widower | Workforce | 1 | 0 | | | | |
| | % | 100,0 | 00,0 | | | | |
| Total | Workforce | 13 | 28 | | | | |

The prevalence of the PTSD was 26, 3% (n = 5) in single migrants without children and 20.0% for the bride and groom with children (n = 2). The calculated P-Value are greater than or equal to 0.05, the hypothesis of independence is not rejected. There is therefore no association between the matrimonial situation and the occurrence of PTST in our study population.

***Table 11.*** *Occurrence of PTSD as a function of the journey of the journey (n = 41).*

| Way | | ESPT | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Terrestrial | Workforce | 13 | 16 | 7 | 4,11 | 0,04 | 20,5 [1,1-378,03] |

| Way | | ESPT | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Maritime | % | 44,8 | 55,2 | 100 | | | |
| | Workforce | 0 | 7 | 29 | | | |
| Others | % | 0,0 | 100 | 100 | | | |
| | Workforce | 0 | 5 | 5 | | | |
| Total | % | 0,0 | 100 | 100 | | | |
| | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100 | | | |

We note that 100% (n = 13) migrants victims of PTSD had taken the land path. The P-Value is less than 0.05, the independence hypothesis is rejected. The migrants who had taken the land path was more likely to develop a PTSD than migrants having taken a different route (gold: 20.5 [1,1-378,03]).

The comparison (P-Value et OR) is made for the destination Italy vs the other destinations.

***Table 12.*** *Occurrence of PTSD as a function of the destination (n = 41).*

| Destination | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Spain | Workforce | 2 | 11 | 13 | | | |
| | % | 15,4 | 84,6 | 100 | | | |
| Italy | Workforce | 11 | 13 | 24 | 5,80 | 0,02 | 6,34 [1,18-34,04] |
| | % | 45,8 | 54,2 | 100 | | | |
| Maghreb | Workforce | 0 | 2 | 2 | | | |
| | % | 0,0 | 100 | 100 | | | |
| Others | Workforce | 0 | 2 | 2 | | | |
| | % | 0,0 | 100 | 100 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100 | | | |

The prevalence of the PTSD was 45.8% (n = 11) among migrants who had Italy as an initial destination for only 15.4% (n = 2) for those who wanted to go to Spain. The P-Value is less than 0.05, the independence hypothesis is rejected. The migrants whose destination Italy was more likely to develop a PTSD than migrants who had a different destination (gold: 6.34 [1,18-34,04]).

The comparison (P-Value et gold) is made individually for each difficulty encountered vs all other difficulties.

*Table 13. Occurrence of PTSD as a function of the type of difficulty encountered to go (n = 41).*

| Difficulties | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Food | Workforce | 11 | 15 | 26 | 4,01 | 0,045 | 4,77 [0,89-25,6] |
| | % | 42,3 | 57,7 | 100,0 | | | |
| Climate | Workforce | 10 | 15 | 25 | 2,13 | 0,14 | 2,89 [0,65-12,8] |
| | % | 40,0 | 60,0 | 100,0 | | | |
| Extortion | Workforce | 11 | 14 | 25 | 4,87 | 0,027 | 5,5 [1,03-29,5] |
| | % | 44,0 | 56,0 | 100,0 | | | |
| Violence from the border police | Workforce | 9 | 13 | 22 | 1,90 | 0,17 | 2,60 [0,65-10,4] |
| | % | 40,9 | 59,1 | 100,0 | | | |
| Violence from armed gangs | Workforce | 8 | 10 | 18 | 2,41 | 0,12 | 2,88 [0,74-11,2] |
| | % | 44,4 | 55,6 | 100,0 | | | |
| Disease | Workforce | 7 | 7 | 14 | 3,21 | 0,07 | 3,5 [0,88-14,0] |
| | % | 50,0 | 50,0 | 100,0 | | | |
| Cleanliness | Workforce | 4 | 6 | 10 | 0,41 | 0,52 | 1,6 [0,37-7,19] |
| | % | 40,0 | 60,0 | 100,0 | | | |
| Removing /kidnapping /imprisonment | Workforce | 3 | 2 | 5 | 1.95 | 0.16 | 3,9 [0,56-26,32] |
| | % | 60 | 40 | 100,0 | | | |
| Orientation | Workforce | 2 | 13 | 15 | 0.17 | 0.68 | 1,52 [0,22-10,38] |
| | % | 13,3 | 86,7 | 100,0 | | | |
| Mystical events | Workforce | 1 | 2 | 3 | 0,004 | 0.95 | 1,01 [0,09-13,15] |

Among the types of difficulties encountered by migrants, those which are most associated with the presence of the PTSD are food (37.5%, n = 9), the difficulties linked to the climate (37.5%, n = 9) and violence from border police forces (41%, n = 9).

The difficulties linked to food and extortion were significantly associated with a higher risk of PTST (OR 4.77 [0.89-25.6] and gold: 5.5 [1,03-29.5]) that the other tested difficulties which had no significant association.

*Table 14. Occurrence of PTSD according to the presence of host in the host country (n = 41).*

| Host | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Yes | Workforce | 6 | 16 | 22 | 0,43 | 0,51 | 0,64 [0,17-2,41] |
| | % | 27,3 | 72,7 | 100,0 | | | |
| No | Workforce | 7 | 12 | 19 | | | |
| | % | 36,8 | 63,2 | 100,0 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |

| Host | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| | % | 31,7 | 68,3 | 100,0 | | | |

The P-Value is greater than 0.05, the independence hypothesis is not rejected. There is therefore no association between the presence of host in the host country and the occurrence of PTSD in our study population.

*Table 15. Occurrence of PTSD as a function of the presence of difficulties during the journey (n = 41).*

| Difficulties of the journey | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Difficult journey | Workforce | 13 | 22 | 35 | 1,86 | 0,17 | 7,8 [0,41-149,70] |
| | % | 37,1 | 62,9 | 100,0 | | | |
| Absence of difficulties | Workforce | 0 | 6 | 6 | | | |
| | % | 0,0 | 100,0 | 100,0 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100,0 | | | |

We note that none of the migrants (n = 6) having encountered any difficulty during the journey had to develop the PTSD against 37.1% (n = 33) of occurrence among those who had met them.

The P-Value is greater than 0.05, the independence hypothesis is not rejected. There is therefore no association between the difficulty of the journey and the occurrence of PTSD in our study population.

*Table 16. Presence of PTSD as a function of the presence of disease (n = 41).*

| Disease | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Yes | Workforce | 7 | 12 | 19 | 0,43 | 0,51 | 1,56 [0,41-5,84] |
| | % | 36,8 | 63,2 | 100,0 | | | |
| No | Workforce | 6 | 16 | 22 | | | |
| | % | 27,3 | 72,74 | 100,0 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100,0 | | | |

It should be noted that 36.8% (n = 7) of migrants who presented an illness during the journey is with a PTSD against 27.3% (n = 6) in those who were not sick. The P-Value is greater than 0.05, the independence hypothesis is not rejected. There is therefore no association between the occurrence of illness during the journey and the occurrence of PTSD in our study population.

*Table 17. Occurrence of PTSD as a function of time elapsed since the return.*

| Time | | ESPD | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Presence | Absence | | | | |
| Less than 2 years | Workforce | 5 | 1 | 6 | 8,19 | 0,004 | 16,9 [1,71-166,21] |
| | % | 83,3 | 16,7 | 100 | | | |
| Between 2 and 4 years old | Workforce | 2 | 4 | 6 | | | |
| | % | 33,3 | 66,7 | 100 | | | |
| 5 years or more | Workforce | 6 | 23 | 29 | | | |
| | % | 20,7 | 79,3 | 100 | | | |
| Total | Workforce | 13 | 28 | 41 | | | |
| | % | 31,7 | 68,3 | 100 | | | |

We note that 83.3% (n = 5) of migrants income for less than 2 years have been attached to 33.3% (n = 2) in those returned between 2 and 4 years and 20.7% (n = 6) in those returned for 5 years or more.

The P-Value is less than 0.05, the independence hypothesis is rejected. Migrants who have returned for less than two years therefore had more likely to present a PTSD than migrants returned for longer (or: 16.9 [1.71-166.21]).

*Table 18. Presence of PTSD as a function of social reintegration.*

| ESPD | | Good social reintegration | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Yes | No | | | | |
| Presence | Workforce | 8 | 5 | 13 | 4,08 | 0,04 | 0,19 [0,04-0,99] |
| | % | 61,5 | 38,5 | 100,0 | | | |
| Absence | Workforce | 25 | 3 | 28 | | | |
| | % | 89,3 | 10,7 | 100,0 | | | |
| Total | Workforce | 33 | 8 | 41 | | | |
| | % | 80,5 | 19,5 | 100,0 | | | |

We note that 61.5% (n = 8) of migrants having had poor social reintegration are affected as the table above against 17.5% (n = 5) in good reintegration. The P-Value is less than 0.05, the independence hypothesis is rejected. Migrants who developed a PTSD were 5.2 times more exposed to poor social reintegration than those who had no PTSD (gold: 0.19 [0.04-0.99]).

*Table 19. PSTD presence according to professional reintegration.*

| ESPD | | Good professional reintegration | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Yes | No | | | | |
| Presence | Workforce | 8 | 5 | 13 | 0,39 | 0,53 | 0,64 [0,16-2,56] |
| | % | 61,5 | 38,5 | 100,0 | | | |
| Absence | Workforce | 20 | 8 | 28 | | | |
| | % | 71,4 | 28,6 | 100,0 | | | |
| Total | Workforce | 28 | 13 | 41 | | | |
| | % | 68,3 | 31,7 | 100,0 | | | |

We note that 71.4% (n = 28) migrants who have not developed a PTSD had good professional reintegration against 61.5% (n = 8) in those with PTSD. The P-Value is greater than 0.05, the independence hypothesis is not rejected. There is therefore no association between the occurrence of PTSD in our study population and professional reintegration.

*Table 20. Presence of PTSD as a function of the desire to return.*

| ESPD | | Desire to return | | Total | $X^2$ | P-Value | OR |
|---|---|---|---|---|---|---|---|
| | | Yes | No | | | | |
| Presence | Workforce | 9 | 4 | 13 | 0,28 | 0,60 | 1,46 [0,36-5,90] |
| | % | 69,2 | 30,8 | 100,0 | | | |
| Absence | Workforce | 17 | 11 | 28 | | | |
| | % | 60,7 | 39,2 | 100,0 | | | |
| Total | Workforce | 26 | 15 | 41 | | | |
| | % | 63,4 | 36,6 | 100,0 | | | |

We note that 60.7% (n = 17) of migrants not affected by PTSD wanted to retry the journey against 69.2% (n = 9) in those affected. Among these, 44% (n = 4) would retry the journey whatever the way to take and the legality of it. The P-Value is greater than 0.05, the independence hypothesis is not rejected. There is therefore no association between the occurrence of PTSD in our study population and the desire to return.

# 5. Discussion

## 5.1. Descriptive Study

### 5.1.1. Socio-Demographic Aspects

The population of migrants contacted in our study was made up of 92.7% (n = 38) of men with a sex/woman sex of 12.6.

This male predominance was also found in other studies conducted in Senegal and West Africa.

Thus, according to the National Agency for Statistics and Demography (ANSD) in Senegal, in 2017, return migrants were men at 97.7% among 9 -17-year-old, 99.1% among 18-25-year-old, 97.8% among 26-35-year-old and 89.8% among 36-44-year-old [2].

The same observation is made by the International Organization of Migration during their various assisted repatriations, carried out between 2016 and 2019, which generally postpone 82.9% of men among the return migrants from Libya from West Africa and a global proportion of men of 95% among all migrants whose return was assisted by IOM [3].

The age of migrants in our study population was located between 24 and 60 years old, the average age was 36.9 years ±

9.3. The most represented age group was that of [20-39-year-old] with 68.3% (n = 28) against 31.7% (n = 13) for [40 and over].

These data join those of the 2018 ANSD in its report on the situation of migrants in Senegal which indicated that of the 1030 returns of returns, 51% belonged to the age group of 18-25 year old, against 32% for 26-35 year old and 8% among 36-44 year old [4].

This youth can be explained by the young age of the Senegalese population. Indeed, the ANSD estimates in 2019 that half of the Senegalese was not 18 years old and that the average age of the Senegalese was 19 years. This average age is higher in the Ziguinchor region reaching 24.4 years [4].

The majority of migrants interviewed were single without children 46.3% (n = 19) followed by bride and groom with children 24.4% (n = 10) and singles with children at 17.1% (n = 7).

These proportions are similar those of the ANSD in its provisional report of the general census of the population who find in the Ziguinchor region a proportion of 53.1% of singles for 40.8% of bride and groom and a proportion of widowers of 3% [5]. Most of the migrants, 70.7% (n = 29), had attended formal school.

Those who reached the average cycle represented 26.8% (n = 11) of our study population followed by those who reached the secondary cycle (22%; n = 9).

This trend is not exclusive to our study.

Indeed, reported to the Ziguinchor region, the formal literacy rate is 66.9% in 2021 according to the ANSD [5]. Another study carried out by the United Nations Development Program (UNDP) on 1920 migrants from 39 African countries reports 24% of migrants who finished the primary cycle, 43% the secondary cycle, 8% having studied and 6% having undergone vocational training [6].

The migrants interviewed (92.7%; n = 38) had a professional occupation before starting their journey. We also noted a relative dominance of craftsmen (39.0%; n = 16) followed by farmers/breeders/fishermen (24.4%; n = 10).

The occupancy rate in our study population is much higher than that found in the literature. Indeed, in Kolda, Kédougou and Tambacounda in 2015, only 50% of migrants had a professional occupation, before their journey. Those evolving in agriculture represented 25% of the study population, 7% in breeding, 5% in hotel and catering and 2% for trade and transport [7].

Indeed, the survey on the economic and social situation (SES) of the Senegal regions conducted in 2021 by the ANSD reported an unemployment rate of 12.9% in Ziguinchor against 46.4% in Kolda, 27.5% in Kédougou and 22.3% in Tambacounda [7].

### 5.1.2. Aspects on the Journey

The motivation for departure to migration most frequently cited by irregular migrants back in Ziguinchor was the financial difficulties in 85.4% (n = 35) of them.

This trend is confirmed because a study on the profile of Senegalese migrants drawn up by the IOM in 2019 revealed in 95% of migrants, the search for better economic activity, better remuneration as well as the hope of finding a better situation elsewhere as the main motivation for departure [8].

These figures are the same as those found when questioning migrants of returns by the IOM in 2018 where 95% said it left because of financial difficulties [9].

We also note that once in Europe, the vast majority of migrants who have an income, 78%, send funds to their country of origin [7].

Italy and Spain constituted the destinations most popular with the irregular return migrants with respectively 58, 5% (n = 24) and 31.7% (n = 13) which aimed to get there by the most borrowed (70.7%; n = 29) and maritime (17.1%; n = 7).

These data are joining at first glance the statistics of the 2017 OIM reporting in its assisted repatriation (Senegalese migrants) of countries of departure located on the track leading to Italy: Niger 46.8% and Libya 37.9% (crossed towards Italy), for only 6.4% in Morocco and 0.3% in the Netherlands [8].

However, these data are different from those appearing in the world portal on migration which notes that "the number of migrants reaching Europe via the central Mediterranean route (RCM) and the Western Mediterranean Route (RMO) decreased between 2017 and 2019. In addition, from 2018, Spain observed an increasing number of passenger arrivals from West Africa, Italy" [10].

This is explained by the fact that the majority of our migrants returned via the assisted repatriation of the IOM in 2017 and that at the time of their departure, the dangers of the crossing of the Sahara linked to the various armed bands had not yet gained the scale that is currently known [11].

The low proportion of return of the United States could be linked to the recent character of the discovery of this path, its distance and its expensive cost revolving around 5 million FCFA [12]. Italy and Spain were the most popular destinations and land and sea routes were most often borrowed.

Eighty-six percent (86%; n = 35) of the migrants of our study had encountered difficulties during their journey.

The most cited difficulties were those related to food (74.3%; n = 24), climate (71.4%; n = 25), extortion (71.4%; n = 25) followed by violence from border authorities (62.9%; n = 22) and difficulties related to armed bands (51.4%; n = 18).

These figures join UNDP estimates which had brought in a proportion of 93% of migrants meeting dangers that could harm their lives [6].

These figures somewhat different from those of Sattler V. In 2021 which reports on 3,700 sub -Saharan migrants that the most often encountered difficulties were first of all of a financial order (47%), then linked to hunger or thirst (41%) and the absence of shelter (38%) and 6%of people declared that they were victims of attacks, 2%retained against their will [13].

These differences, although significant can be explained by the fact that his study focused on populations of refugee

migrants in war areas and countries in economic crisis, not being able to prepare their journey like Senegalese migrants.

### 5.1.3. Aspects on PTSD

At the end of our assessment of clandestine migrants back in Ziguinchor by PCL-5, 31.7% (n = 13) of migrants had presented a proven PTSD.

This figure complies with those made by James Pb et al. Who obtained 4,639 migrants in 2022 31.46% of CTT and 48.25% of these migrants were from Africa [14].

The difference noted maybe-Itre explained by the fact that some of these Africans came from countries in conflicts and the same study highlights the fact that the presence of traumatic factors before the start of the influenza on the occurrence of PTSD [14].

Another study carried out by Lhu et al. In 2018 reported 47% of PTST with a high proportion of refugee migrants [15].

## 5.2. Analytical Study

It has been noted that 33.3% (n = 1) migrants returning to our study suffered from PTSD.

These figures differ from those obtained by Alemi and Al. which brought in a prevalence of 62.62% PTSD among Afghan migrant women. This high percentage is partly explained by a strong association of sexual violence in these Afghan women [16].

Although our results are lower, the proportion of women with PTSP remains greater than the proportion of men which remains similar to what literature reports [16].

It should be noted that migrants who had taken the land path had 20.5 times more likely to develop a PTSD and that those aimed at Italy had 6.34 times more likely to be reached.

This situation could be linked to the difficulties encountered on the Trans -Saharan migration road.

Indeed, among the types of difficulties that have been encountered those most associated with the presence of the PTSD are food (4.77 times more risks) and extortion (5.5 times more risk). The latter is often practiced by border authorities or by armed gangs.

Regarding these, a study carried out in the detention centers of migrants in Libya revealed between 40 and 95% of difficulties linked to vital needs and denounced an occurrence of daily traumatic events higher than those found in detention centers in Europe [17]. A study on the determinants of the PTSD in refugees has shown that human rights violation is strongly associated with its occurrence [17].

It should be noted that 83.3% (n = 5) of migrants returned for less than 2 years have been attached to 33.3% (n = 2) in those returned between 3 to 4 years and 20.7% (n = 6) in those returned for 5 years or more. Migrants that have been returned for less than 2 years have 16.9 times more likely to be attached to the administration of the questionnaire.

These results bring us back to the natural history of the PTSD which can evolve towards remission over time. Thus, a longitudinal study on the natural history of the PTST made by Perkonig et al. reveals total remission in 58% of individuals who have not been re -exposed to a traumatic event during the 4 years following the last exhibition [18].

This explains the disparity between the proportions according to the period elapsed since the return.

We note that 61.5% (n = 8) of migrants having had poor social reintegration have been attached, migrants who developed a PTSD were 5.2 times more likely to have bad social reintegration than those who did not have a PTSD.

This is explained by the fact that the PTSD can be accompanied by social isolation, the elements of which are found in the criteria D, E and F of DSM 5 [19].

We note that 69.2% (n = 9) of the irregular return migrants reached by the PTSD had wanted to retry the journey without a significant association between the occurrence of PTSD in our study population and the desire to return.

This is slightly lower than the values found, in particular by the UNDP which reports that 93% of migrants experienced dangers during the journey and would take it anyway if the occasion was the occasion that there is no association between the desire to return and the dangers encountered during the journey [6].

The journey and the return had been marked for 56.1%(n = 23) of migrants by the occurrence of various pathologies dominated by the alteration of the general condition (19.5%; n = 8) and the occurrence of depressive syndrome after return (12.2%; n = 5).

This depressed syndrome is characteristic of a psychiatric entity: the depressive disorder which is described in the DSM-5 (F34) (12) and which is often described in migrants. James Pb et al. thus report a prevalence of 33.20% of this disorder [14].

Among these migrants, only three benefited from psychological care provided by a psychologist (66.6%) and a psychiatrist (33.3%) at the request of the border authorities of his destination country and local NGOs.

It should be noted that the initiative for the health care of migrants returning to Senegal by the government was only implemented in January 2023 with the support of the IOM [20] and our cohort was mostly returned before this date.

# 6. Conclusion

At the end of this work we see that the return migrant is generally a young man, single without children, educated, with people with his own, a professional occupation and traveling for financial reasons.

The prevalence of the PTSD among return migrants is 31.7%. The occurrence of the PTSD was favored by the borrowing of the land path, by the occurrence of difficulties linked to food and extortion. Literacy was a protective factor. The PTSD impacted on social reintegration but had no impact on professional integration and the desire to return.

## Abbreviations

| | |
|---|---|
| PTSD | Post-Traumatic Stress Disorder |
| PCL-5 | PTSD Checklist for DSM-5 |
| IOM | International Organization for Migration |
| NGO | Non-Government Organization |
| BAOS | Orientation and Follow-up Office of the Senegalese from the Outside and Migrants |
| ANSD | National Agency for Statistics and Demography in Senegal |
| UNDP | United Nations Development Program |
| SES | Economic and Social Situation |
| RMO | Western Mediterranean Route |
| RMC | Central Mediterranean Route |

## Conflicts of Interest

The authors declare no conflicts of interest.

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