

# Etiologies and Associated Factors of Generalised Pruritus *Sine Materia* in the Dermatology-Venerology Department of CHUD-Borgou/Alibori (Benin)

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**How to cite this paper:** Agbessi, N., Degboe, B., Ngabakoua, V.F., Akpadjan, F., Hougbo, O., Adegbidi, H., Atadokpede, F. and Koudoukpo, C. (2023) Etiologies and Associated Factors of Generalised Pruritus *Sine Materia* in the Dermatology-Venerology Department of CHUD-Borgou/Alibori (Benin). *Journal of Cosmetics, Dermatological Sciences and Applications*, 13, 209-219.

<https://doi.org/10.4236/jcda.2023.133018>

**Received:** July 21, 2023

**Accepted:** September 10, 2023

**Published:** September 13, 2023

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## Abstract

**Introduction:** The aim was to identify the etiologies of generalised pruritus *sine materia* and to determine the associated factors in Parakou. **Methods:** This was a retrospective observational study conducted from January 2011 to June 2022. The patients included were of all ages and both sexes in whom the *sine materia* nature of the pruritus was noted after clinical examination. These patients had an etiological assessment available or not, complete or partial. For each patient, socio-demographic, socio-cultural, socio-economic and clinical data were collected using a pre-established survey form. They were then processed and analysed using Epi Data 3.1 and SPSS version 21 software respectively. **Results:** The incidence of generalised pruritus *sine materia* was 0.89% (73 cases/8214 consultants). The predominant etiologies were aquagenic pruritus (16.4%) and intestinal parasitosis (12.3%). After a bi-variate analysis, two risk factors were identified: frequency of towel change greater than 1 month (OR = 3.02; CI<sub>95%</sub> = 0.98 - 9.31; P = 0.0486) and use of cold water for bath (OR = 3.28; CI<sub>95%</sub> = 1.09 - 9.81; P = 0.0274). **Conclusion:** The etiologies and associated factors of generalised pruritus *sine materia* found in Parakou are varied but are linked to lifestyle. There is an urgent need to raise public awareness of the need to improve lifestyle in order to reduce the frequency of pruritus *sine materia*.

## Keywords

Generalized Pruritus *Sine Materia*, Etiologies, Associated Factors, Parakou

## 1. Introduction

Pruritus is an unpleasant sensation leading to the need to scratch or rub [1]. According to some authors [2] [3], pruritus is the most common symptom in dermatology. In fact, a study carried out in Oslo in Norway, showed that pruritus was the most commonly reported symptom (7%) and was much more prevalent in men from East Asia (18%) and slightly less so in North Africa (13%) [4]. In another study, also carried out in Oslo on 18,770 participants, 8.4% of adults aged between 30 and 76 years old surveyed in the general population suffered from pruritus [5]. In contrast, a German study published in 2017 showed that around 13.5% of the general population suffered from chronic pruritus, with an incidence of 7% [6]. Depending on its course, pruritus is either acute or chronic [7]. There are two clinical forms: localised or generalised. Pruritus is said to be generalised *sine materia* when it affects the whole body and is not accompanied by specific dermatological lesions. It impairs patients' quality of life. Also known as "naked" pruritus, generalised pruritus *sine materia* can have many etiologies: systemic (hepatic, renal, haematological, endocrine, iatrogenic), psychogenic, neuropathic or idiopathic [8]. It may be due to an accumulation of toxins (cholestatic or uraemic pruritus) or to exogenous agents (chemicals, drugs). It may therefore be indicative of serious internal illnesses. In Benin and particularly in Parakou, there is little data on the causes of generalised pruritus *sine materia*. The aim of this study was to identify the etiologies of generalized pruritus *sine materia* and to determine the factors associated with its occurrence in Parakou Hospital.

## 2. Materials and Methods

This was a retrospective, descriptive, analytical observational study. Data were collected from January 2011 to June 2022. Patients of any age and sex were included if pruritus was considered to be *sine materia* after clinical examination, and if an etiological work-up was available or not, either complete or partial. Sampling was carried out by exhaustive recruitment of all the files of patients meeting the inclusion criteria who had consulted a doctor during the study period. The dependent variable was generalized pruritus *sine materia* and the independent variables were sociodemographic, history, lifestyle, cosmetic habits, clinical aspects and etiologies. For each patient, sociodemographic, clinical and etiological data were collected using a pre-established survey form (**Annex 1**). The data collected were recorded, processed and analysed using Epi Data 3.1 and SPSS version 21 software respectively. Microsoft Word 2016 and Excel 2016 were used to enter the text and organise the data in the form of tables and graphs. Qualitative variables were analysed independently and presented in the form of numbers (n) and proportions in the population (%) with their 95% confidence intervals. Quantitative variables were presented as means and standard deviations. The Chi-2 test was used to compare proportions. Univariate analysis was used to search for an association between the different independent va-

riables and pruritus *sine materia*. Values of  $P < 5\%$  were considered statistically significant. A risk analysis based on the OR parameter and its confidence interval revealed risk factors associated with pruritus *sine materia*.

### 3. Results

The hospital incidence of generalised pruritus *sine materia* was 0.89%, either 73 cases out of 8214 consultants over the 12 years period. There were 38 women and 35 men, either a predominance of women with a *sex ratio* of 0.92. The average age of patients was  $33 \pm 14.7$  years, with extremes ranging from 3 to 80 years; young adults aged 20 to 35 years (60.3%) were the most represented, followed by those aged 35 to 50 years (18.7%) and those aged 50 to 65 years (7.3%). Patients aged over 80 were the least represented (0.5%). Most of the patients were married, 39 patients (53.4%), and pupils or students predominated (32.9%), followed by the self-employed (21.9%) in terms of socio-professional status. With regard to lifestyle (**Table 1**), 35.6% of patients drank alcohol and 68.5% of patients washed their bodies twice a day. The majority of patients (54.8%) changed their clothes every 2 days.

Patients were systematically asked to undergo a biological assessment. These included complete blood count, hepatic transaminases, HBsAg, HCV antibody, blood sugar, creatinine, HIV serology, sedimentation rate and parasitological examination of stools. More than half of the patients did not afford the requested tests, which made it difficult to determine the cause. The predominant etiologies (**Table 2**) were aquagenic pruritus (41.4%), followed by intestinal parasitosis (31.0%) and idiopathic generalised pruritus *sine materia* (10.4%). Depressive anxious state, viral hepatitis C and martial deficiency were found in 3.4% of patients.

With regard to associated factors, no statistically significant link was found between sociodemographic, socio-cultural or socio-economic data and generalised pruritus *sine materia*. However, in the lifestyle section, two risk factors were found after bivariate analysis (**Table 3** and **Table 4**): the frequency of changing towels greater than 1 month (OR = 3.02;  $CI_{95\%} = 0.98 - 9.31$ ;  $P = 0.0486$ ) and the use of cold water for body cleansing (OR = 3.28;  $CI_{95\%} = 1.09 - 9.81$ ;  $P = 0.0274$ ).

### 4. Discussion

The prevalence of generalised pruritus *sine materia* varies widely in the literature. It was low (0.89%) in Parakou, Cotonou (Benin) and Iran [9] [10], whereas it was higher in Nigeria, Ghana and Togo [3] [11] [12]. This high prevalence in these countries may be linked to the study period, when certain endemic parasitoses, such as onchocerciasis and filariasis, were still prevalent in these regions. According to the literature, the frequent causes of generalised pruritus *sine materia* are internal diseases, found in proportions of 10% to 50% [10] [11] [12] [13]. These are most often haemopathies, chronic renal failure, hypothyroidism

**Table 1.** Distribution of patients suffering from generalised pruritus *sine materia* according to lifestyle in the Dermatology-Venerology Department of CHUD-B/A from January 2011 to June 2022.

	Type of patient				N
	Case		witnesses		
	n	%	n	%	
<b>Alcohol consumption</b>					
Yes	26	35.6	74	50.7	100
No	47	64.4	72	49.3	119
<b>Tobacco consumption</b>					
Yes	1	1.4	6	4.1	7
No	72	98.6	140	95.9	212
<b>Number of body washes per day</b>					
Once	13	17.8	16	11.0	29
Twice	50	68.5	110	75.3	160
Thrice	7	9.6	20	13.7	27
More than three times	3	4.1	0	0.0	3
<b>Towel change interval</b>					
At 1 week	11	15.1	37	25.3	48
>1 week ≤1 month	53	72.6	99	67.8	152
>1 month	9	12.3	10	6.8	19
<b>Bedding change interval</b>					
At 1 week	21	28.2	50	34.2	71
>1 week ≤1 month	48	65.8	91	62.3	139
>1 month	4	5.5	5	3.4	9
<b>Clothes change interval</b>					
Every day	28	38.4	58	39.7	86
Every two days	40	54.8	82	56.2	122
Every three days	5	6.8	6	4.1	11
<b>Temperature of water used for bath</b>					
Hot	2	2.7	4	2.7	6
Cold	65	89.0	132	90.4	197
Lukewarm	6	8.2	10	6.8	16
<b>Type of sponge used for bath</b>					
Toilet net	62	84.9	126	86.3	188
Glove towel	3	4.1	7	4.8	10
Traditional net	1	1.4	5	3.4	6

**Table 2.** Distribution of patients suffering from generalised pruritus *sine materia* according to etiology in the Dermatology-Venerology Department of CHUD-B/A from January 2011 to June 2022, N = 29.

	Effective	%
<b>Aquagenic pruritus</b>	<b>12</b>	<b>41.4</b>
<b>Intestinal parasitosis</b>	<b>9</b>	<b>31.0</b>
Idiopathic generalised pruritus <i>sine materia</i>	3	10.4
Senile pruritus	2	7.0
Depressive-anxious state	1	3.4
Viral hepatitis C	1	3.4
Martial deficiency	1	3.4

**Table 3.** Factors associated with generalized pruritus *sine materia* in the Dermatology-Venerology Department of CHUD-B/A from January 2011 to June 2022.

	Type of patient				N	OR	CI	P-value
	Case		Witnesses					
	n	%	n	%				
<b>Number of body Washes per day</b>								
Once	13	44.8	16	55.2	29	2.32	0.75 - 7.18	0.1401
Twice	50	31.3	110	68.8	160	1.29	0.51 - 3.26	0.5782
Thrice	7	25.9	20	74.1	27	1	---	---
More than three times	3	100.0	0	0.0	3	---	---	---
<b>Towel change interval</b>								
At 1 week	11	22.9	37	77.1	48	1	---	---
>1 week ≤1 month	53	34.9	99	65.1	152	1.80	0.84 - 3.81	0.1217
>1 month	9	47.4	10	52.6	19	3.02	0.98 - 9.31	0.0486
<b>Bedding change interval</b>								
At 1 week	21	29.6	50	70.4	71	1	---	---
>1 week ≤1 month	48	34.5	91	65.5	139	1.25	0.67 - 2.33	0.4695
>1 month	4	44.4	5	55.6	9	1.90	0.46 - 7.80	0.3646

**Table 4.** Factors associated with generalized pruritus *sine materia* in the Dermatology-Venerology Department of CHUD-B/A from January 2011 to June 2022 (Following).

	Type of patient				N	OR	CI	P-value
	Case		Witnesses					
	n	%	n	%				
<b>Clothes change interval</b>								
Every day	28	32.6	58	67.4	86	1	---	---
Every two days	40	32.8	82	67.2	122	1.01	0.56 - 1.82	0.9723
Every three days	5	45.5	6	54.5	11	1.72	0.48 - 6.14	0.3952

## Continued

Use of water for bath								
Well water	18	43.9	23	56.1	41	1.84	0.90 - 3.74	0.0881
Borehole water	9	34.6	17	65.4	26	1.24	0.51 - 3.00	0.6224
Tap water	45	29.8	106	70.2	151	---	---	---
Others	1	100.0	0	0.0	1	---	---	---
Temperature of water Used for bath								
Hot	2	33.3	4	66.7	6	0.83	0.11 - 6.01	0.8564
Cold	65	33.0	132	67.0	197	3.28	1.09 - 9.81	0.0274
Lukewarm	6	37.5	10	62.5	16	1	---	---
Type of sponge used for bath								
Toilet net	62	33.0	126	67.0	188	1.14	0.28 - 4.59	0.8450
Glove towel	3	30.0	7	70.0	10	1	---	---
Traditional net	1	16.7	5	83.3	6	0.46	0.03 - 5.90	0.5509
No	7	46.7	8	53.3	15	2.04	0.37 - 11.07	0.4046

and martial deficiency. In Parakou, the most frequent etiology was aquagenic pruritus, accounting for 41.4%. This result is comparable to those found by Dégboé *et al.* in Cotonou (Benin) [9] and Olumide *et al.* in Nigeria [11], where aquagenic pruritus was the most frequent etiology (32.5% and 21% respectively). This could be explained by the fact that these different studies were carried out in the same West African context, where the lack of financial resources and the illiteracy of patients constitute a real obstacle to etiological research into generalised pruritus *sine materia*. In the study population, internal diseases came in second position and were dominated by intestinal parasitosis (31.0%). A prospective study conducted over 12 months by Pitché *et al.* in Togo [3] had found intestinal parasitosis as the main aetiology in a proportion of 24.75%. In Africa, the importance of parasitosis in the occurrence of generalised pruritus *sine materia* could be explained by environmental factors (major tropical parasitic endemics, hot, humid climate). Poverty and a lack of individual and collective hygiene are also factors that encourage parasite infestation [14] [15]. According to the literature, pruritus is a cardinal sign of atopy and is known to be a risk factor for pruritus [15] [16]. Olumide *et al.* in Nigeria made the same observation and noted that the notion of personal atopy was a risk factor for generalised pruritus *sine materia* [11]. This is in contrast to the results of the Parakou study, where the risk factors were the frequency of changing towels for more than 1 month ( $P = 0.0486$ ; OR = 3.02) and the use of cold water for bath ( $P = 0.0274$ ; OR = 3.28). In addition, several authors have noted the rarity of generalised pruritus *sine materia* in patients under 16 years of age and consider that an age greater than 16 years could be a risk factor for the occurrence of generalised pruritus *sine materia* [3] [9] [10] [17] [18]. The same observation was made in Parakou, where only 2.3% of patients under the age of 15 had the condition. The limita-

tions of the present study were that the search for generalised pruritus *sine materia* solely in the Dermatology Department of the CHUD-B/A did not allow us to reflect its true prevalence in hospitals, or its various etiologies; similarly, the fact that most patients did not undergo paraclinical examinations was a real obstacle to etiological research.

## 5. Conclusion

The frequency of pruritus *sine materia* is not negligible in Parakou. The causes of generalised pruritus *sine materia* are diverse, with aquagenic pruritus at the top of the list, followed by internal parasitosis. Identifying these when treating patients will undoubtedly improve their quality of life.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Annex 1. Survey Sheet

Generalized Pruritus *Sine Materia*: Epidemiological, Clinical, Étiological Aspects and Associated Factors in the Dermatology-Venerology Department of Chud-Borgou/Alibori (Benin)

SOCIO-DEMOGRAPHIC INFORMATIONS			
1	Gender	1. Female 2. Male	/__/
2	Age	In years	/__/_/
3	Marital status	1. Single 2. Married 3. Divorced 4. Widow (er) 5. Not applicable	/__/
4	Profession/Occupation	1. Unemployed 2. Pupil /Student 3. Civil servant 4. Trader 5. Farmer 6. Worker/artisan 7. Self-employed person 8. Retired 9. Other to be specified (____) 10. Not applicable	/__/
5	Place of residence	1. Urban 2. Peri-urban 3. Rural	/__/
6	Religion	1. Christian 2. Muslim 3. Endogenous 4. Atheist 5. Other	/__/
7	Ethnic group	1. Fon and related 2. Dendi 3. Bariba and related 4. Yorouba and related 5. Peulh 6. Ditamari and related 7. Mina 8. Adja and related 9. Unspecified 10. Other (_____)	/__/
SOCIOECONOMIC INFORMATIONS, LIFESTYLE AND MEDICAL HISTORY			
8	Alcohol consumption	1. Yes 2. No	/__/
9	Tobacco consumption	1. Yes 2. No	/__/
10	Number of body washes per day	1. Once 2. Twice 3. Thrice 4. More than three times	/__/
11	Towel change interval	1. At one week 2. >one week and ≤at one month 3. >at one month	/__/
12	Bedding change interval	1. At one week 2. >one week and ≤at one month 3. >at one month	/__/
13	Clothes change interval	1. Every day 2. Every two days 3. Every three days 4. After a week	/__/
14	Regular medication use	1. Yes 2. No If yes which	/__/
15	Use of water for bath	1. Well water 2. Borehole water 3. SONEB water 4. Others ( )	/__/
16	Temperature of water used for bath	1. Hot 2. Cold 3. Lukewarm	
17	Type of sponge used for bath	1. Toilet net 2. Glove towel 3. Traditional net	/__/
18	Medical history	1. No medical history 2. Diabetes 3. AHT 4. Drépanocytose 5. Hemodialysis 6. HIV 7. Others ( )	/__/
19	History of itchy skin or systemic conditions	Yes / / No / / if yes which (urticaria, lichen planus, prurigo, contact eczema, atopic dermatitis, varicella, bullous pemphigoid, dermatitis herpetiformis, psoriasis, toxidermitis, leucémie, others)	
20	Notion of atopy	1. Yes 2. No	/__/
21	If yes which	1. Asthma 2. Sinusitis 3. Allergic rhinitis 4. Allergic conjunctivitis 5. Others ( )	
22	Family history	1. No family history 2. AHT 3. Rhinitis 4. Sinusitis 5. Asthma 6. Diabetes 7. HIV 8. Drépanocytose 9. Other (_____)	/__/
23	Recent deworming	1. Yes 2. No	/__/
DATA RELATED TO THE USE OF COSMETICS			
24	Use of body milk	1. Yes 2. No	/__/
25	If yes which	1. Depigmenting body milk 2. Perfumed body milk 3. Unscented body milk 4. Body cream 5. Body ointment 6. Body balm 7. Others ( ) 8. Unspecified	/__/

**Continued**

26	Use of body soap	1. Yes 2. No	/_/_/
27	If yes which	1. Detergent 2. Antiseptic 3. Superfatted 4. Enlightening 5. Marseilles 6. Neutral 7. Others ( ) 8. Unspecified	/_/_/
28	Perfume	1. Yes 2. No	/_/_/
29	Nail polish	1. Yes 2. No	/_/_/
30	Use of depigmenting products	1. Yes 2. No	/_/_/

**INTERROGATION AND PHYSICAL EXAMINATION**

	Patient	1. Case; 2. Control	
	<i>if case continue ; if control end of filling</i>		
31	Duration of symptoms	1. <six weeks 2. >six weeks	/_/_/
32	Spawn mode	1. Progressive 2. Sudden	/_/_/
33	Evolution mode	1. Permanent 2. Intermittent 3. occasional	/_/_/
34	Schedule of pruritus	1. Diurnal 2. Nocturnal 3. Without schedule	/_/_/
35	Nocturnal upsurge	1. Yes 2. No	
36	Period of onset of symptoms	1. Dry season 2. Rainy season	/_/_/
37	Intensity	1. Light 2. Moderate 3. Severe	/_/_/
38	Existence of factors that can cause pruritus	Yes / / No/ / if yes which ( medication intake, food, cosmetic application, water, toilet net, heat, cold, sun exposure, physical exercise, others)	
39	Aggravating factors	1. Medication intake 2. Food 3. Cosmetic application 4. Water 5. Toilet net 6. Heat 7. Cold 8. Sun exposure 9. Physical exercise 10. Others ( )	
40	Calming factors (cite)		
41	Background of familial pruritus	1. Yes 2. No	/_/_/
42	Accompanying signs	1. Weight loss 2. Asthenia 3. Anorexia 4. Diarrhea 5. Abdominal pain 6. Insomnia 7. Fever 8. Pallor 9. Icterus 10. Dehydration folds 11. Malnourishment folds 12. Hepatomegaly 13. Splenomegaly 14. Adenopathies 15. None 16. Others	/_/_/
43	Previous treatment	1. Antihistamines 2. Dermocorticoid 3. Corticosteroids 4. None 5. others	/_/_/
44	Prescribed by	1. Self-medication 2. Physician/Nurse 3. Dermatologist 4. Unspecified	
45	Presence of scratch marks	1. Yes 2. No	/_/_/
46	If yes which	1. Punctiform excoriation 2. Linear streaks 3. Lichenification 4. Impetiginization	/_/_/

Complementary examinations

NB: P = positive, Neg = negative, N = normal, AN = abnormal, B = Low, E = High

47	Complete blood count	RBC.... WBC.... Hb.... Platelets....
48	Blood sugar	
49	Hepatic transaminases	ALT... AST...
50	Blood creatinine	
51	Gamma glutamyl transferase	

**Continued**

52	Alkaline phosphatase		
53	Bilirubin		
54	Liver markers	Anti-HBs / /	Anti-HCV / /
55	HIV serology		
56	Thyroid hormones	TSH... T3... T4...	
57	Protein electrophoresis		
58	Calcemia		
59	Skin biopsy		
60	Others		

**ETIOLOGICAL DIAGNOSIS OF GENERALIZED PRURITUS *SINE MATERIA***

61	General infectious diseases	HIV infection / /	Viral hepatitis / /
62	Metabolic, endocrine and neuropsychiatric causes	CKD/ / Diabetes mellitus/ / Hepatic cholestasis/ / Hyperthyroidism/ / Hypothyroidism/ / Thyrotoxicosis/ / Hyperparathyroidism/ / Neurological disease/ / Anxiety or depression/ / Others/ / Specify	
63	Blood disorders	Polycythaemia/ / Iron deficiency/ / Hodgkin's disease/ / Hématological malignancies/ /	
64	Neoplasia	Yes/ /	No/ /
65	Drug-induced pruritus	Yes/ /	No/ /
66	Cosmetic-induced pruritus	Yes/ /	No/ /
67	Pruritus due to professional substances	Yes/ /	No/ /
68	Pruritus due to climate change	Yes/ /	No/ /
69	Aquagenic pruritus	Yes/ /	No/ /
70	Senile pruritus	Yes/ /	No/ /
71	Internal parasites	Yes/ /	No/ /
72	Idiopathic generalized pruritus <i>sine materia</i>	Yes/ /	No/ /