

## The effect of the common determinants factors on the clinical aspects of pityriasis versicolor from Missan province

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### Abstract

**Introduction and objective:** Pityriasis (tinea) versicolor is a mild, chronic infection of the skin caused by *Malassezia* yeasts, and characterized by discrete or confluent, scaly oval to round macules scattered over characteristic areas of the body, including the upper trunk, neck, and upper arms. The color of patches varies from almost white to pink to reddish brown or fawn colored. The aim of the present study is to assess the effect of the common determinants factors on the clinical aspects of pityriasis versicolor in Missan province.

**Patients and methods:** The study sample consist of 300 patients with pityriasis versicolor attending the Department of Dermatology in Al-Sader Teaching Hospital in Missan province during the period from October 2015 to March 2016. The diagnosis of pityriasis versicolor was done by clinical examination and established by woods lamp of the skin lesion and 10% KOH examination of scraping from skin lesion for suspected cases.

**Results:** out of, 300 patients with pityriasis versicolor, there were 180 males and 120 females. The ages of patients ranged from 10 to above 60 years. The majority of cases 43% fall in age group of 20-29 years. The majority of cases came from urban areas (63.4%) compared to (36.6%) from rural areas. The indoor patients were 165 and outdoor patients were 135 with 48.3 % presented with hyperpigmentation, followed by 40% with hypopigmentation, 6.7% mixed and 5% erythematous. The time of onset in summer 55% compared to 45% in winter. Asymptomatic individuals were 56.7% while who complaining from mild pruritus were 43.3% with 51.47% were chronic cases compared to 48.3% were acute cases. The nonexposed area trunk (45%) infected more than exposed area (25%) and (30%) was mixed areas.

Conclusion : Pityriasis versicolor is a very common asymptomatic pigmentary dermatologic problem with predominance of hyper pigmented ones in cases with outdoor jobs especially from rural area in Missan province.

### تأثير العوامل المحددات المشتركة على الجوانب السريرية للنخالية المبرقشة من محافظة ميسان

#### الخلاصة:

النخالية (السعفة) المبرقشة هو عدوى فطرية خفيفة ومزمنة في الجلد الناجم عن الخمائر مالاسيزيا، وتتميز بشكلها الجلدي البيضاوي متقشرة منفصلة أو مندمجة، إلى حطاطات مستديرة المنتشرة على مناطق مميزة من الجسم، بما في ذلك الجذع العلوي، الرقبة، وأعلى الذراعين. لون البقع يختلف من الأبيض تقريبا إلى اللون الوردي إلى البني المحمر. الهدف من هذه الدراسة هو تقييم تأثير العوامل المحددات المشتركة على الجوانب السريرية للنخالية المبرقشة في محافظة ميسان. تتكون عينة الدراسة من 300 مريض مع النخالية المبرقشة راجعوا قسم الأمراض الجلدية في مستشفى الصدر التعليمي في محافظة ميسان خلال الفترة من أكتوبر 2015 إلى مارس 2016. تم تشخيص النخالية المبرقشة عن طريق الفحص السريري وأكدت تشخيص الحالة بواسطة مصباح (الضوء الأزرق الداكن) للآفة الجلد ومحلول بيروكساييد البوتاسيوم 10% فحص كشط من الآفة الجلدية للحالات المشتبه بها. النتائج من أصل 300 مريض مع النخالية المبرقشة، كان هناك 180 ذكور و 120 أنثى تراوحت أعمار المرضى من 10 إلى أكثر من 60 عاما. غالبية الحالات 43% تقع في الفئة العمرية من 20-29 عاما. وجاءت غالبية الحالات من المناطق الحضرية (63.4%) مقابل (36.6%) من المناطق الريفية. وكان المرضى الوظائف الداخلية 165 مريضا، وكان (135 مريضا وظائف خارجية في الشمس مع 48.3% يعانون من فرط التصبغ، تليها 40% مع نقص التصبغ، و 6.7% مختلطة و 5% حمامي. وكان الأفراد الذين ليس لديهم أي أعراض 56.7% في حين أن الذين يشكون من حكة خفيفة 43.3%. 51.47% من الحالات كانت مزمنة مقارنة مع 48.3% من الحالات كانت لحادة. وكانت المنطقة المصابة الغير معرضة للشمس (45%) أكثر من المنطقة المعرضة (25%) و (30%) كانت مناطق مختلطة. الاستنتاج: النخالية المبرقشة هو مرض فطري تصبغي (لوني داكن) جلدي شائع جدا مع هيمنة الحالات المصطبغة عند الوظائف في الهواء الطلق وخاصة في المناطق الريفية في محافظة ميسان.

**Key words :** Pityriasis versicolor, *Malassezia*, woods lamp, Missan province.

#### Introduction

Pityriasis (tinea) versicolor is a mild and chronic superficial fungal infection of the skin caused by a type of yeasts are called *Malassezia*, and characterized by scattered or confluent, scaly, hypopigmented or hyperpigmented macular skin lesions, mainly on the upper trunk and neck. *Malassezia* (dimorphic lipophilic yeasts) are part of the normal flora of the human, the most common types are *Malassezia furfur*, *M.globosa*, *M.pachydermatis*.(1) Tinea versicolor presented as

finely scaly oval to round macules scattered over characteristic areas of the body, upper trunk, neck, and upper arms, often with perifollicular lesions. The color of skin lesions varies from almost white to pink to reddish brown. The fine scale is described as dust-like. Under appropriate factors, it converts from the saprophytic yeast to the predominantly parasitic mycelial form, which causes clinical disease.(2) The dicarboxylic acids which produced by the dimorphic yeast may have a cytotoxic damaging effect on melanocytes and inhibit the tyrosinase enzyme that leads to hypopigmented macules.(3) There is a reduction in number, size, and accumulations of melanosomes in melanocytes and in surrounding keratinocytes. In general patients with tinea versicolor are asymptomatic, although minority of some patients complain of mild pruritus .(4)

Direct microscopy with potassium hydroxide 10% (KOH) of scale scraped from the surface of skin lesions were carried out for those suspected cases of tinea versicolor ( to look for the presence of hyphae and clusters of yeast cells they resemble ‘spaghetti and meatballs’).

Tinea versicolor occurs worldwide, with a high rate (20-50%) in humid and hot environmental regions .(3) Several reports from Iran showed that tinea versicolor is more prevalent in the regions with a higher rate in south, which have warm and humid climate. The frequency of pityriasis versicolor in Iran varies from 4.4-57.7% in different reports.(5-11)

In Iraq, the pityriasis versicolor infection rate in Baghdad was found to be 5% and the average age at infection was 20.8 years.(7) While in Basrah, the infection rate was 40.5% and the male to female ratio was 3:2 and the age group 11-20 years was found mostly affected. (8)

Tinea versicolor can be successfully treated with topical antifungal medications like 2.5% selenium sulfide and ketoconazole (Nizoral ointment and shampoo). It is normally applied to a dry skin and washed off after 10 minutes, repeated daily for 2 weeks. Oral antifungals include ketoconazole, itraconazole or fluconazole they prescribed if the rash is over a large area of the skin, or is not cleared by the topical treatments.(11,12)

However, recurrence rates following successful treatment remain high and there are no dosage guidelines available for administration of oral antifungal agents that carry risks of adverse events.(13)

Aim of the study

The aim of this study is to determine the common factors that affect some clinical aspect of tinea versicolor that occurred in Missan population who are attend dermatological outpatient in Al-Sader Teaching Hospital during the period from October 2015 to March 2016.

#### Patients and methods

This is prospective cross-sectional study of 300 patients for pityriasis versicolor attending the Department of Dermatology in Al-Sader Teaching Hospital in Amara city during the period from October 2015 to March 2016. Diagnosis was made by dermatologist on clinical basis and the suspected cases sent for laboratory investigation (KOH test). To confirm the diagnosis wood's light examination was done in a dark room to accentuates pigment changes.

The skin scrapings from infected areas by using scalpel or a glass slide were placed directly onto a microscope slides and were covered with 10% potassium hydroxide and the slide is left, for five to fifteen minutes, in order to dissolve skin cells. The slides were gently heated for 10 minutes to facilitate the action of the KOH before microscopically examined.(6)

The total number of patients with tinea versicolor that included in our study were 300. One hundred eighty of them(60%) were males and 120(40%) were females. The patients were divided according to their age into four groups. The majority of cases 43% fall in age category of 20-29 year followed by 32% in age group 10-19 years and age group above 40 in 15%.

Interviews with the patients were done using a questionnaire designed by the researcher and data were collected individually at the time of the diagnosis.

Statistical study done by using data analysis software (SPSS version 16 and Excel 2010) presented as tables of number and percentage with figures.

#### Results :

Regarding the residency , the majority of cases were from urban area (63.4%) compared to (36.6%) in rural area as shown in the figure 1.

In respect to the occupation, most of the outdoor males was policemen, soldiers and construction workers. While the indoor males were students, females indoor were (housewife and students ). Our results showed that the number of indoor patients 165 (120 female and 45 male ) while the outdoor were 135 all of them male patients as in the figure2.

In this study, 48.3 % presented with hyperpigmentation, followed by 40% with hypopigmentation, 6.7% mixed and 5% erythematous. The hypopigmented

lesions were more common in males( 52.8%) while the hyperpigmented lesions were more in females (62.5%) as in the table 1. Regarding to the site of infection, nonexposed area, trunk abdomen and back (45%) infected more than exposed area (25%) and (30%) were mixed areas table 2.

Concerning the time of the onset of the disease, the majority of the cases the onset was in summer 55% compared to 45% in winter as in shown figure 3. Regarding to the use of topical steroid drug, 11.6% of cases using these drugs as misdiagnosis as shown in the figure 4. According to its duration, 51.47% were chronic compared to 48.3% acute as in table 3.

Asymptomatic individuals were 56.7% (66.7% male, 41.6% female ) while who complaining from pruritus were 43.3% (33.3%male and 58.4% female ) as in the table 4. The percentages of patients who used topical antifungals were 18.6% while not use 81.4% as in the figure 5. Concerning the use of topical steroid, our study showed that (11.6%) used these drugs as misdiagnosis, and this leads to flaring of superficial fungal infection figure 6. According to previous treatment, (81.4%) didn't take any medication compared to (18.6%) took medication a of ketoconazol shampoo figure 7.

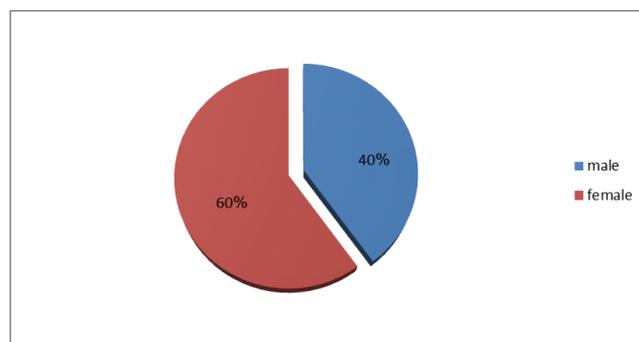


Figure.1 Rate of infection according to gender

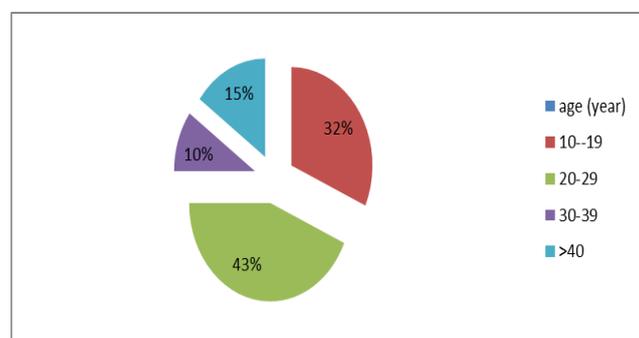


Figure.2 Distribution of infection according to age

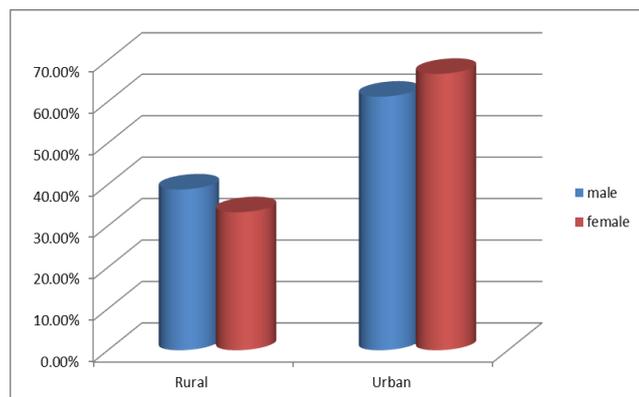


Figure.3 Rate of infection according to residency

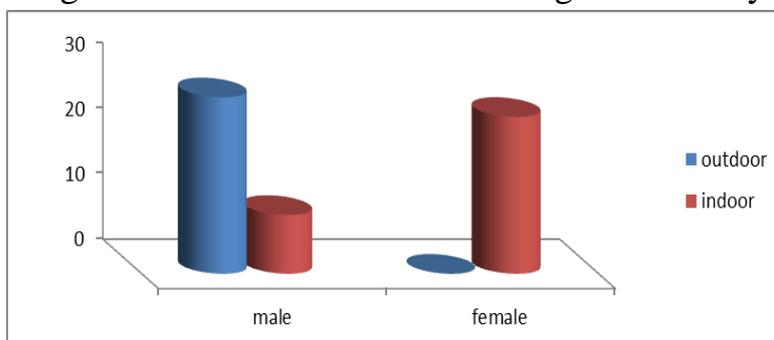


Figure.4 Relation between tinea versicolor &amp; occupation

Table .1 Distribution of skin color lesions

Color of skin lesions	Gender	
	Male (%)	Female (%)
Hyperpigmented	70 (38.9)	75 (62.5)
Hypopigmented	95 (52.8)	25 (20.9)
Mixed	10 (5.5)	10 (8.3)
Erythematous	5 (2.8)	10 (8.3)
Total	180 (60)	120 (40)

Table.2 Sites of involvement in pityriasis versicolor

Site of lesion	Gender		Total (%)
	Male (%)	Female (%)	
Exposed	70 (38.8)	5 (4.1)	75 (25)

Non exposed	35 (19.4)	100 (83.3)	135 (45)
Mixed	75 (41.6)	15 (12.5)	90 (30)
Total	180 (60)	120 (40)	300 (100)

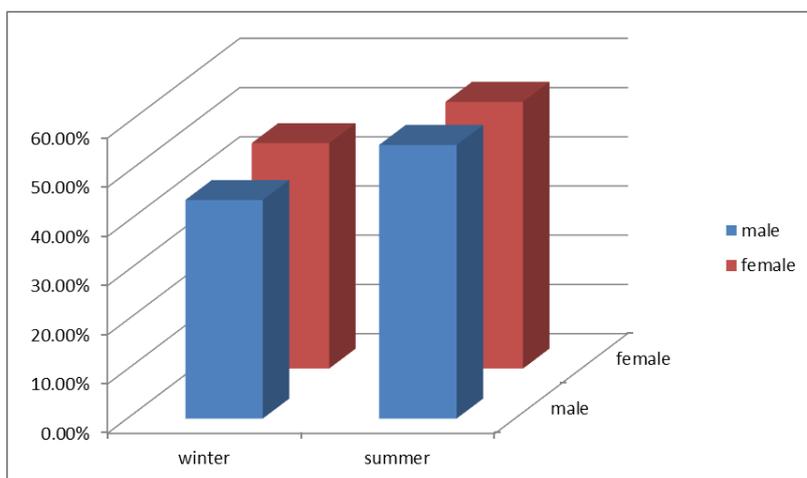


Figure.5 Percentage of infection according to time of the onset of the disease.

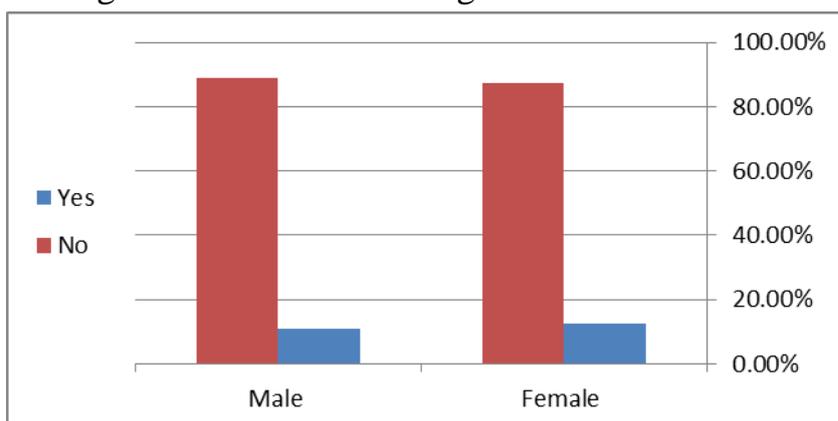


Figure. 6 Topical steroid in tinea versicolor

Table.3 Duration of tinea versicolor infection

Duration	Gender		Total (%)
	Male (%)	Female (%)	
Acute	95 (52.7)	50 (41.6)	145 (48.3)
Chronic	85 (47.3)	70 (58.4)	155 (51.7)
Total	180 (60)	120 (40)	300 (100)

Table 4 Itching in patients with tinea versicolor

Itching	Gender		Total (%)
	Male (%)	Female (%)	
Yes	60 (33.3)	70 (58.4)	130 (43.3)
No	120 (66.7)	50 (41.6)	170 (56.7)
Total	180 (60)	120 (40)	300 (100)

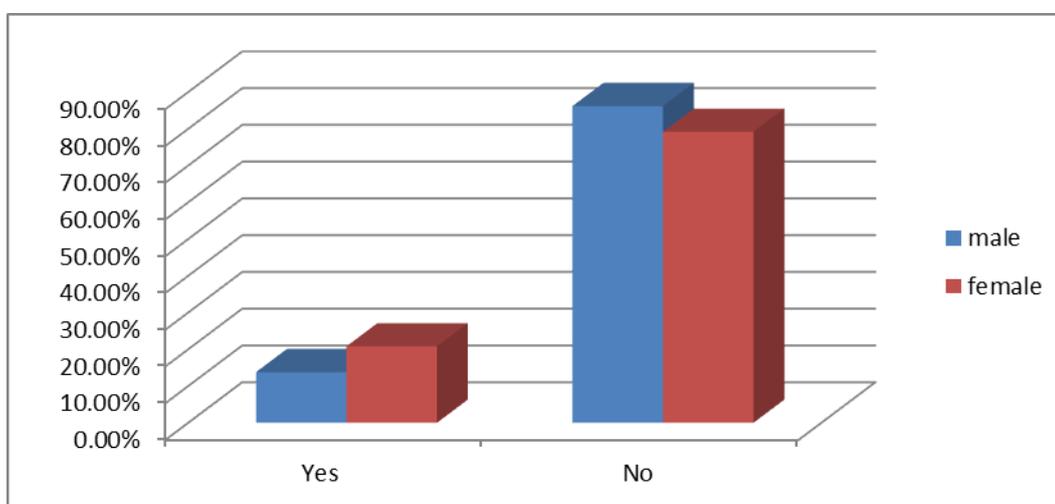


Figure. 7 Previous antifungal treatment in patients with tinea versicolor  
Discussion

Pityriasis versicolor is a major cosmetic health problem all over the world including Iraq, the adverse cosmetic effects of the lesion may lead to significant emotional distress, particularly in adolescent. (3,9,10)

In the present study, we noted that the frequency of male patients with pityriasis versicolor was higher than that of female patients, 180(60%) versus 120(40%) male patients. We found this result was similar to the Iranian and Indian studies.(7,14,15) While locally our results is dissimilar when compared with same study done in Erbil province, which showed pityriasis versicolor to be slightly higher in female patients(51.7%) than that of male patients(48.5%).(8) A possible explanation for that most of our patients came from a conservative poor community. Since pityriasis versicolor is asymptomatic in most cases, the female patients often do not consult doctors early especially when lesions occur in the

covered parts of the body, they do not seem to pay attention to cosmetic problem unless it occurs on face and neck. Most of male patients were (military personnel & building worker) which associated with seborrheic skin and hyper sweating that made them more susceptible to infection. Furthermore sebaceous gland activity was increased normally in males 15 years and older compared to female patients and that may also promote tinea versicolor infection in male patients. (8-12)

The most susceptible age group prone to have tinea versicolor occurred between 20-29 years (43%) followed by (32 %) in age group 10-19 years, this is consistent with study made in Al-Muthana 2010 which discovered that the age 21-30 years occupy the majority of cases in about(41%) and age 11-20 in (20%), because this age group (postpubertal period) of high level of physical activity, increased activity of sebaceous glands, more seborrheic skin and lipophilicity nature of the causative fungus so these factors are suitable for growth and occurrence of tinea versicolor infection.(9) Also these data were in agreement with other studies.

Concerning to the color of the skin lesion, our study showed that the majority of cases were hyperpigmented (62.5%) among female because most of the rash were in the non exposed area ( lighter than exposed) and hypopigmented (52.8 %) among male because most of the rash were in the exposed area (darker than non exposed ) so this give us that sun exposure areas like face and dorsum of the hand not involved with the disease which mean that the sun light act as inhibitory factor for growth of superficial fungal infection, it is concordance with other studies in which hyperpigmented skin lesions more than hypopigmented. (7,8,11)

There is a significant difference between urban and rural populations. Our result showed that most of cases were from urban area (63.4%), this is comparable with the study done in Baquba 2004 which revealed that cases from rural area were a little bit more likely to be infected with tinea versicolor 51.6%, this as a result of hot, humid environmental conditions in the rural area and because those people not well educated about this relatively asymptomatic skin disease in comparison to urban people so they ignore the disease.(10)

In respect to the itching, the majority of cases were asymptomatic(56.7%) and even those who were complaining from itching were very mild (43.3%), this is similar to the results of Baquba study which discovered that (60.9%) were non itching.(10)

Regarding the duration of disease, we discovered the majority were chronic (more than 6 week) is about (51.7%), because most of the cases asymptomatic or that associated with mild itching usually occur in non-exposed area so most of our patients neglect it and doesn't consult the doctor early, while the other study showed that a (44.1%) occur for more than two months.(7)

The highest rate of onset of the infection occur during summer (55%) compared to (45%) in winter but the time of consultation of patients in winter, this result is in consistence with Indian study which shows spontaneous remission in winter months in 30% cases. Hence, it may be assumed that hot and humid environment of our country is more important predisposing factor than nature of job.(12)

Concerning the use of topical steroids, our study showed that (11.6%) used these drugs as misdiagnosis, and this led to flaring of superficial fungal infections.

Regarding the sites of infection, nonexposed area trunk ( neck, abdomen and back) (45%) infected more than exposed area (25%) and this was in agreement with many studies.(7,8,9) This distribution of patches parallels to the density of sebaceous glands activity while other study showed that neck was the most common site (40.6%) followed by shoulder (31.3%) and upper arm (15.6%).(10)

About occupation, most male patients were outdoor 135 and most of them were policemen, building workers or soldiers while indoor patients were students, because those who doing hard works, athletes and military personnels usually are associated with hyper sweating and become more vulnerable to tinea versicolor.

According to previous treatment, (81.4%) hadn't taken any medication compared to (18.6%) took medication a of ketoconazol shampoo. Largely asymptomatic nature of this disease and lack of attention to cosmetic problems among patients of poor socioeconomic background (who form bulk of our patients) seem to explain the neglecting of treatment.(12)

Conclusion : from our study we would say that pityriasis versicolor is very common pigmentary dermatologic problem and all types of pigmentary variations are present in Missan province especially those from rural areas with predominance of hyper pigmented ones. Although the three types of pigmentary variations can occur simultaneously in any individual case, it is more common in jobs with high and humid environmental conditions.

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