## Original Article:

# Delusional Parasitosis: A seven-year retrospective analysis of 25 cases in tertiary level hospital

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## Abstract

**Background:** Delusional parasitosis (DP) is a delusional state with a fixed false belief of having an infestation of insects, mites, lice, worms or other organisms. It is a rare psycho-cutaneous disease entity mostly misdiagnosed initially by non-psychiatrist medical practitioners making early diagnosis and management challenging. **Objective:** To analyse socio-demographic and clinical profiles of delusional parasitosis. **Methods:** This retrospective study was carried out in the dept. of psychiatry, holy family red crescent medical college, Dhaka, Bangladesh over 7 years (January 2017- December 2022). From 12940 registered cases of different psychiatric illnesses diagnosed by psychiatrists according to DSM-5, 25 cases of DP were diagnosed sorted out and enrolled for analysis. Data of sociodemographic profile and clinical information especially psychiatric history and diagnosis and other comorbidities especially dermatological complains and manifestations were reviewed by psychiatrist and dermatologist. **Result:** The frequency of DP among psychiatric illnesses is 0.2%. The mean age of the patients of DP was 54.56±6.02 years ranging from 45 to 69, female to male ratio was 1:2.6. The Majority (76%) of the DP patients were of secondary type with comorbid medical and psychiatric illness including major psychiatric disorders such as schizophrenia, substance use disorder (cannabis, amphetamine and alcohol), obsessive-compulsive disorder, major depressive disorder and trichotillomania. The mean duration of delusional symptoms was 9.88 ±2.64 months. Among 25 patients of DP, 17 were initially treated by non-psychiatrists (mostly dermatologists). **Conclusion:** For early diagnosis and management of delusional parasitosis exclusion of suspected dermatological conditions and timely referral to a psychiatrist is crucial to minimize the burden of psychiatric manifestation and reduce the cutaneous discomfort and disfigurement.

**Key words:** Delusional parasitosis, Delusional infestation, Dermatological delusion, Ekbom syndrome

## Introduction

About one-third of patients seen in dermatological patients present with psychiatric complaints and delusional parasitosis (DP) is one of the complex psycho-cutaneous issues[1]. DP, a rare but unique psychotic disorder presenting with the unwavering fixed false belief of an individual having an infestation of living organisms on the skin without any medical evidence supporting this belief1.1 Skin-related delusional diseases with unspecific status and/or status without dermatological findings, among others 'dermatological delusion', are categorized as 'delusional disorders'[2]. As the patient typically denied the existence of such a delusional

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condition, it can be reasonably considered that DP is underreported. The incidence of DP was estimated as 1.9 cases per 100,000 person-years in a population-based survey[3]. This is typically a disease of middle-aged socially isolated women (the average age is 57 ± 14 years)[4]. Though the exact neurobiological or pathological mechanisms of DP are not fully clear, Huber et al. proposed that the dysregulated functioning of striatal dopamine transporter (DAT), which is responsible for increased extracellular dopamine level, could potentially be an important etiological factor for both (primary and secondary) forms of delusional parasitosis[5]. DP is a monosymptomatic hypochondriacal psychosis also termed as delusional infestation, or Ekbom syndrome. According to DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition code 297.1 F22) required diagnostic criteria: i. suffering with delusion for >1 month which does not fit with the required criteria for schizophrenia; ii. the patient is functioning in general outside of the delusion of parasitosis; iii. mood episodes have been brief relative to the duration of the delusional period(s), and where the disturbance is not attributable to medical conditions, substances, or another disorder[6]. DP can be classified as i. primary, ii. secondary (functional), and iii. organic forms. In primary DP, the subject presents with the delusion of being infested with parasites but no background psychiatric or organic disorders are identified. In secondary (functional) DP background psychiatric disorders are associated whereas in organic variants of DP associated organic disease is present.[7-8] An individual with DP fails to be satisfied with the delusional character of their misapprehension by disagreement or lack of proof and seems to be mentally healthy when addressing issues other than their own "infestation." Some of the patients of DP are afraid of contaminating other people, especially members of their family, and perform various preventive actions. Numerous disinfectants, creams, soaps, and chemicals are used excessively to get rid of the "parasite" or to alleviate symptoms.[9] Patients of DP frequently presented with itching, skin rashes, burning, stinging, or formication for six months or longer and had no physical findings present. On physical examination of skin excoriations or scars can be noticed due to the patient's past attempts to undertook to remove "organisms" using various objects or their fingernails. They can also present with irritant dermatitis as they will sometimes turn to alternative treatments and home products in an attempt to remove the "organism."[10]

Diagnosis of DP is a particular challenge classically for months or years. Presenting features of DP are very real and distressing to the patient, making patients engaged to seek help from multiple specialists including family practitioners, dermatologists, and parasitologists, which leads to financial losses due to absence from work, cleaning costs, and visits to medical specialists. Though DP usually does not impair the patient's capacity to normal functioning, rather serves as a barrier and persistent complaint. However, in some instances, it can lower their quality of life significantly.[10] For establishing a diagnosis of DP the dermatological conditions causing a sensation of crawling of the parasite, itching, stinging and excoriations including scabies, dermatitis herpetiformis, and prurigo simples should be ruled out.[11] The presence of physical features including puncture, sting, bites or specific rashes would lead to consider parasitic infestation. Other diseases that should be considered and excluded include Alzheimer's dementia, HIV/AIDS, recreational use/abuse of drugs (e.g., cocaine, stimulants, narcotics) and adverse effects of therapeutic drugs such as antiparkinsonian agents, stimulants, antidepressants, antihypertensives, antiepileptic.[11] In the present study, the demographic and clinical data of 25 patients with delusional parasitosis are analysed.

## Method

This retrospective study was conducted in the Department of Psychiatry, holy family red crescent medical college, Dhaka, Bangladesh. In the mentioned department suspected patients of psychiatric illness are attended by a consultant psychiatrist and data of all diagnosed patients are recorded and preserved carefully. The psychiatric diagnoses are done according to the structured clinical interview, Mini International Neuropsychiatric Interview, Psychiatric history and examinations were carried out by a psychiatrist. The Mini-Mental Status Examination (MMSE) is also applied to all patients. Data from 12,940 patients with psychiatric illness (who attended the psychiatry OPD and were referred from other departments, especially dermatology) from January 2017 to December 2022 were analysed. From all patients of psychiatric illness persons having delusional parasitosis were primarily identified from the registrar. The cases of delusional parasitosis who were diagnosed by a specialist psychiatrist according

to DSM-5 were finally enrolled. Data of sociodemographic profiles including age, gender, occupation, residence, socioeconomic condition and marital status were collected. Along with the final psychiatric diagnosis, comorbid medical conditions including dermatological, neurological, endocrine and other associated medical conditions were taken as a multidisciplinary approach and recorded. Patients' present or past diagnoses that were specially done by dermatologists and the prescribed medications were also noted. The data on available laboratory tests were also summarized which was used to exclude potential secondary delusional parasitosis. Informed consent was taken from each patient. Privacy of all information and data was strictly ensured at every level.

## Result

A total of 25 patients were identified from 12,940 registered individuals of psychiatric illness with a prevalence of 0.2%. Among the DP patients, 6 were male and 19 were females with a male-female ratio of 1:2.6. The mean age of the patients of DP was 54.56±6.02 years, with a range of 45 to 69 years (Table I).

**Table I: Summary of patients' demographic and clinical characteristics (n=25)**

**Demographic and clinical characteristic of patients of delusional parasitosis**

| | | | |
|---|---|---|---|
| Age: Mean±SD, range (years) | 54.56±6.02, 45-69 | Associated psychiatric disease | |
| Gender (M:F) | 1:2.6 | Schizophrenia | 3 |
| Duration of delusional symptoms Mean±SD, range (months) | 9.88±2.641 (2-24) | SUD (multiple response) | Alcohol 3, Amphetamine 1, Cannabis 2 |
| Types of DP | | OCD | 2 |
| Primary | 6 | MDD | 3 |
| Secondary | 19 | Trichotillomania | 1 |
| Comorbid-medical disease (multiple response) | | Source of referral | |
| -Dementia | 5 | Dermatologist | 7 |
| -DM | 7 | Medicine specialist | 4 |
| -HTN | 5 | Neurologist | 3 |
| -COPD/Br. Asthma | 3 | Endocrinologist | 1 |
| -Parkinson's Disease | 4 | Self | 9 |
| -Hypothyroidism | 4 | Self | |
| -Stroke | 1 | | |

Their occupation was service holder 20%, business 16%, housewife 40%, and others (1 cultivator and 2 teachers). Two patients are unemployed and 1 patient left his job due to disease. The majority (84%) were married, 8% unmarried and 8% divorced. Sixty-four percent hailed from urban areas, 24% from semi-urban and 12% from rural areas. Sixty percent of patients belonged to a middle-class family. 16% from upper class and 24% from lower class families. Regarding comorbidities diabetes mellitus (28%), dementia (20%), hypertension (20%), hypothyroidism (20%), Parkinson's disease (16%), COPD/ Bronchial Asthma (12%) and 4% had a history of stroke. Regarding comorbid psychiatric illness, 16% of respondents had Substance-related disorders (alcohol, cannabis and amphetamine), 12% had Schizophrenia, 12% had major depressive disorder and 8% had obsessive-compulsive disorder (OCD). One patient had Trichotillomania. 76% had secondary DP due to comorbid medical and psychiatric illness, and 24% had primary DP. The duration of their delusional symptoms was from 2 months to 2 years. 28% of patients were referred by dermatologists, 16% by medicine specialists, 12% by neurologists and 4% by endocrinologists. 36% of patients directly attended Psychiatry OPD.

## Discussion

DP is not a common psychiatric disorder so detailed epidemiological study regarding its frequency is not widely available which is mostly encountered in dermatological practice. In a study by Winokur in 1977 PD has a prevalence of 0.1 to 0.4% among delusional disorder in psychiatric inpatients and in a Japanese study the prevalence is 1.2% among psychiatric patients attended in OPD. In the current study prevalence of PD is 0.2 among all registered patients with psychiatric illness12-13. Among the elderly (older than 50 years) patients with DP of females are predominantly affected with a male-to-female ratio is 1:314. In the present study male: female ratio is 1:2.6 which is compatible with other studies. Regarding the age of onset of the disease, DP is reported to show a double peak with higher numbers of patients present between the ages of 20-30 and 50-69.15 In the current study the mean age of the study was 54.56±6.02 years ranging from 45 to 69 years.

The majority of patients of DP seek health care from non-psychiatric medical professionals including dermatologists, neurologists, general practitioners, dentists and internists who do have not enough expertise to diagnose and manage these complicated psychiatric issues. Szepietowski et al., described that 84.7% of dermatologists had given consultation to at least one patient with delusional parasitosis during their professional career.[16] A detailed dermatological consultation including physical examination, laboratory and microbiological tests as well as

mineral oil skin scraping is crucial to establish the diagnosis by excluding dermatological causes especially real parasitic infestation.[17,10] In the present study, 17 out of 25 patients were initially treated by a non-psychiatrist (mostly dermatologist). In most of the instances, DP presents as an insidious onset after suffering for more than six months.[18] In the current study, the mean duration of delusional symptoms was about 10 months.

DP can be classified as primary or secondary. When delusion occurs on its own like a mono-delusional disorder it can be graded as the primary type satisfying criteria of the International Classification of Diseases, 10th revision (ICD-10), for persistent delusional disorder and criteria of the Diagnostic and Statistical Manual of Mental Disorders, (DSM-5, Fifth edition) for delusional disorder, somatic type.[19] In the current series of DP cases, 24% were comprised of a primary psychotic disorder referred to as a primary delusional disorder type according to the present classification system.[20-21] In 76% of DP cases of our study had underlying major psychiatric disorders such as Schizophrenia, substance use disorder (cannabis, amphetamine and alcohol), obsessive-compulsive disorder, major depressive disorder and trichotillomania that exhibited typical symptoms of DP, which can be termed as secondary DP. This group also included DP secondary to a physical illness like diabetes, hypertension, hypothyroidism, COPD etc or a neurological disease like dementia, Parkinson's disease and stroke. In many studies, several organic conditions have been causally related to DP, including substance abuse, and infectious and endocrine disorders.[22-23] Although DP is known to occur in a wide variety of these physical illnesses, previous studies also found a primary psychotic disorder as the main cause of DP4,[14,24]. In our study, thyroid disease, diabetes, Parkinson's disease, dementia, and cardiovascular and pulmonary diseases were considered comorbid conditions as well as etiological factors. The advanced age of the patients of our study may explain this high occurrence of comorbidities.

Parasitic delusions can be associated with substance abuse of many types. Cocaine, methamphetamine, methylphenidate hydrochloride and alcohol are notorious substances, abuse of which may cause tactile hallucination giving a sensation of parasitic crawling.[25] In our study, 4 patients had a history of substance abuse to one or more agents including alcohol, cannabis and amphetamine.

## Conclusion

Establishing an effective liaison among different disciplines is very crucial for early diagnosis and management of delusional parasitosis. As most of the patients of DP seek health care from dermatologists, early diagnosis and referral to a psychiatrist can help to reduce the psychiatric disease burden as well as prevent scarring and other cutaneous morbidities.

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