

# Review Article

## Delusion of Pregnancy: A Systematic Review of 84 Cases in the Literature

Sagar Chandra Bera, Siddharth Sarkar<sup>1</sup>

### ABSTRACT

Case reports of delusion of pregnancy have emanated from all over the world, yet the rarity of this phenomenology has precluded systematic large scale descriptive or cohort studies. This systematic review was conducted to assess the demographic characteristics, clinical profile, treatment outcome and aetiological factors from the published case reports of delusion of pregnancy. Electronic databases including PubMed, PsychInfo and Google Scholar were used to identify case reports relating to delusion of pregnancy published in peer-reviewed English language journals. All such cases were systematically evaluated by investigators, and information was extracted using a structured proforma. A total 40 articles were reviewed which included 84 cases. Demographic characteristics revealed that about half of the patients were aged 20-40 years. The most common diagnoses were schizophrenia (35.7%), bipolar disorders (16.7%) and depression (9.5%). Single foetus was reported by 79.8% of the patients, and 45.2% perceived foetal movements. Good treatment response was noted in 64.3 % of the cases. The prominent aetiological factors that were implicated included psychosocial factors, coenaesthopathological processes, socio-cultural factors and hyperprolactinaemia. Delusion of pregnancy is a heterogeneous symptom which emerges during the course of various neuropsychiatric disorders. A range of aetiopathological mechanisms have been implicated in the causation of this disorder.

**Key words:** *Delusional pregnancy, delusion of pregnancy, hyperprolactinaemia, schizophrenia*

### INTRODUCTION

Delusion of pregnancy can be described as a false and fixed belief of being pregnant despite factual evidence to the contrary.<sup>[1,2]</sup> This interesting phenomenological symptom has been reported not only in women but also in men. The symptom can present as a part of another disorder or can present in isolation. When

present independently, a delusion of pregnancy is described as somatic type of delusional disorder according to Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), within the realms of schizophrenia spectrum and other psychotic disorders.<sup>[3]</sup> The literature on the topic seems to have included case reports, and large-scale epidemiological descriptive or cohort studies are lacking. The rarity of the delusion of pregnancy coupled with the lack of coherent data about its characteristics calls for a systematic documentation of literature pertaining to this symptom to inform further clinical practice and research inquiry.

Before discussing in more detail about delusion of pregnancy, certain other similar and related terms need to be clarified. First on the list is pseudocyesis, which is characterized by conviction of a non-pregnant

Access this article online	
<b>Website:</b> www.ijpm.info	<b>Quick Response Code</b> 
<b>DOI:</b> 10.4103/0253-7176.155609	

Departments of Psychiatry, All India Institute of Medical Sciences, New Delhi, <sup>1</sup>Psychiatry, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India

**Address for correspondence:** Dr. Sagar Chandra Bera  
Department of Psychiatry and National Drug Dependence Treatment Centre, All India Institute of Medical Sciences, New Delhi - 110 029, India.  
E-mail: berasagar@gmail.com

woman that she is pregnant, in association with the development of the signs and symptoms of pregnancy. The clinical distinction between pseudocyesis and delusion of pregnancy is primarily based on the presence or absence of physical signs and symptoms of pregnancy.<sup>[4,5]</sup> Pseudocyesis can be delusional, but the term is most appropriately used when physical symptoms of pregnancy do appear.<sup>[6,7]</sup> Pseudocyesis when presenting without delusion should be included in the other specified somatic symptom and related disorder, in DSM-5.<sup>[3]</sup> Simulated pregnancy can be considered a factitious disorder when a person claims to be pregnant knowing that he or she is not. Pseudopregnancy is caused by a tumour which creates endocrine changes suggestive of pregnancy.<sup>[8]</sup> Couvade syndrome occurs when a man develops symptoms of pregnancy when the wife becomes pregnant but knows that he is not pregnant.<sup>[9,10]</sup> It bears a superficial resemblance to delusion of pregnancy, but insight is preserved in Couvade's syndrome while it is absent in delusion of pregnancy.<sup>[2]</sup>

Delusion of pregnancy is an aetiologically heterogeneous phenomenon. Both biological and psychological factors have been implicated in the causation of this symptom.<sup>[2]</sup> The range of psychological explanations include cognitive misinterpretation of bodily sensations and physical changes, poor reality testing and wish-fulfilment, an attempt to recapture the lost love object such as husband or child, sustainment and perpetuation of cultural beliefs, unconscious attempt to change the life situation among women in conservative societies, among others.<sup>[11]</sup> Neuroleptic-induced hyperprolactinaemia, galactorrhoea and intestinal dilation may stimulate, confirm and/or reinforce the perceptions of pregnancy due to misinterpretation of somatic sensations.<sup>[12]</sup> The phenomenology appears to be nosologically non-specific and has been reported in a variety of disorders.

The case reports describing the varied demographic, clinical, aetiological and outcome characteristics necessitate a systematic review of the published reports. We could not identify any systematic review relating to the phenomenon. Hence, we conducted a systematic review for evaluating demographic characteristics, clinical profile, treatment measures and aetiological factors from the published case reports of delusion of pregnancy.

## MATERIALS AND METHODS

### Search strategy

Electronic databases were searched for all published case reports related to delusion of pregnancy. PubMed, PsychInfo and Google Scholar search engines were searched for relevant articles. The keywords were

delusion\* and pregnancy, 'delusion of pregnancy'. The searches were carried out in August 2014. Searches were independently conducted by the two authors and the list of relevant abstracts was collated. Additionally, case reports were identified from the cross references and reference list of included studies. Unpublished material and non-peer reviewed material were not included as a part of the review. Comprehensive hand searches of libraries were not made as a part of the present review.

### Study selection

Studies published in peer-reviewed English language journals pertaining to delusion of pregnancy in humans were included in the present review. All the case reports describing delusions of pregnancy in individual patients were included. The articles reporting pseudocyesis, simulated pregnancy (malingering or factitious), pseudopregnancy and Couvade syndrome were not included in the analysis.

### Data extraction

Full texts of the identified literature were obtained. Information was extracted from the data using a semi structured proforma especially designed for the study, based on the review of literature. The proforma contained variables pertaining to demographics of the sample like age, gender, marital status, education, occupation and country of residence; clinical and treatment variables like primary illness associated with delusion of pregnancy, conviction and duration of beliefs, number of children in the delusion, auditory hallucination related to belief, perception of foetal movements, treatment responsiveness, non-pharmacological treatment undertaken. Aetiological factors like psychosocial factors, coenaesthopathological processes (disordered experience of exaggerated or distorted proprioceptive, kinaesthetic or haptic sensations of which the subject is not normally aware), socio-cultural factors, hyperprolactinaemia-induced beliefs of pregnancy, hyperprolactinaemia and psychotropic drug implicated were also gathered. The extracted information was qualitatively noted and then coded by the investigators. Qualitative data was converted into categories. Data extraction was done by one of the authors (S.C.B.) and about 10% of the cases were coded by both the authors which showed good inter-rater reliability.

### Data analysis

Data analysis focused upon descriptive assessment of the extracted information. Frequency and percentages were used to represent the demographic and clinical data. Summary data was computed to find the numbers of cases in each category. Parametric tests were not required and effect sizes could not be calculated as

the data involved single or handful of cases from each included study. The assessment of data quality was not conducted as a part of the study as it was based upon individual case reports.

## RESULTS

The study identification and inclusion process is depicted in Figure 1. The combined database searches yielded a total of 192 articles, with 5 articles additionally identified through cross-references. Out of them, 50 were duplicates or described probably the same case. One hundred and three articles were excluded for being either non-English language, not being case reports, not describing the cases for ascertainment of patient level data, or not directly dealing with a strict definition of delusion of pregnancy. Four of the articles could not be obtained,<sup>[13-16]</sup> and hence the present review included 40 articles. The included articles varied in the number of cases described from one case,<sup>[1,2,17-41]</sup> two cases,<sup>[42,43]</sup> three cases,<sup>[44-46]</sup> four cases,<sup>[47]</sup> five cases,<sup>[48-51]</sup> six cases<sup>[52]</sup> to a maximum of seven cases.<sup>[53,54]</sup>

The demographic characteristics of patients having

**Table 1: Demographic characteristics of the sample**

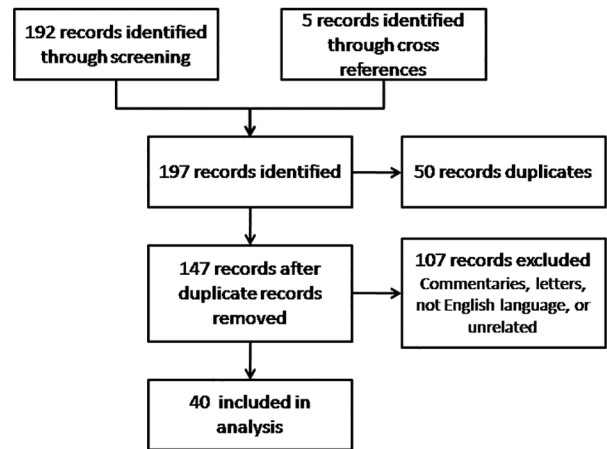
Variables	n (percentage)
<b>Age</b>	
Upto 20 years	7 (8.3)
21-30	20 (23.8)
31-40	20 (23.8)
41-50	13 (15.5)
51-60	9 (10.7)
More than 60	15 (17.9)
<b>Gender</b>	
Male	20 (23.8)
Female	64 (76.2)
<b>Marital status</b>	
Married/living together	32 (38.1)
Unmarried	32 (38.1)
Separated/divorced /widowed	15 (17.9)
Not mentioned	5 (6.0)
<b>Education</b>	
Up to 10 <sup>th</sup> the year	15 (17.9)
Beyond 10 <sup>th</sup> the year	13 (15.5)
Not mentioned	56 (66.7)
<b>Occupation</b>	
Employed	11 (13.1)
Unemployed	4 (4.8)
Not mentioned	69 (82.1)
<b>Country of residence</b>	
Americas	8 (9.5)
Europe	36 (42.9)
Asia	30 (35.7)
Africa	8 (9.5)
Australia	1 (1.2)
Not mentioned	1 (1.2)

Figures in parenthesis are percentages

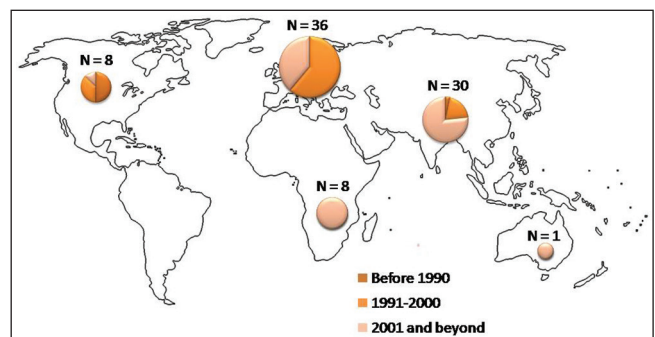
delusion of pregnancy are presented in Table 1. Amongst 84 reported cases, 47.6% patients were in the age range of 21 to 40 years, and 28.6% patients were more than 50 years of age. Vast majority (76.2%) of the patients were females. Approximately, 38.1% of patients were either unmarried or living alone. Most of the cases were reported from Europe (42.9%) and Asia (35.7%). The region of studies, and also the time of publication are graphically depicted in Figure 2.

Clinical and treatment variable are presented in Table 2. The most common diagnoses were schizophrenia (35.7%), bipolar disorders (16.7%) and depression (9.5%). About 79.8% patient reported of having single foetus, whereas 6.0%, 7.1% and 7.1% of patients had reported to have twin, triplet and four or more children, respectively. About 8.3% of patients had reported of hearing voices of their foetuses while 45.2% had perceived foetal movements. About 64.3% of patient had responded well on treatment while non-pharmacological management was received by 19.4% of patients only.

Aetiological factors are summarized in Table 3.



**Figure 1:** Study inclusion and exclusion



**Figure 2:** Case reports of delusion of pregnancy from across the globe. Sizes of the pie proportional to the number of cases reported. Pie slices represent case report from different time periods. Region of one case report was not clear

Psychosocial factors were implicated in 64.3% of patients in the genesis of delusion of pregnancy and wish fulfilment was found to be most common psychosocial factor implicated. Coenaesthopathological processes were reported to be responsible for development of delusion of pregnancy in 20.2% of patients. Socio-cultural factors were the apparent reasons for development of delusion of pregnancy in 42.9% of patients. About 15.5% of patients had antipsychotic-induced hyperprolactinaemia leading to delusion of pregnancy.

**Table 2: Clinical and treatment variables**

Clinical and treatment variables	n (percentage)
Primary illness	
Organic (medical disorders)	4 (4.8)
Schizophrenia	30 (35.7)
Schizoaffective disorders	4 (4.8)
Other psychotic illness	6 (7.1)
Depressive disorders	8 (9.5)
Bipolar disorders	14 (16.7)
Neurotic disorders	1 (1.2)
Comorbid psychiatric and medical disorders	11 (13.1)
Others	6 (7.1)
Conviction of belief of pregnancy	
Ideational	2 (2.4)
Delusional	82 (97.6)
Duration of belief of pregnancy	
Less than 3 months	27 (32.1)
3 months to 1 year	17 (20.2)
1-2 year	2 (2.4)
2-5 year	5 (6.0)
5-10 years	2 (2.4)
More than 10 years	6 (7.1)
Not mentioned	25 (29.8)
Number of children in the belief of pregnancy	
Single	67 (79.8)
Twin	5 (6.0)
Triplet	6 (7.1)
4 or more	6 (7.1)
Auditory hallucination related to belief of pregnancy	
Yes	7 (8.3)
No	71 (84.5)
Not mentioned	6 (7.1)
Perception of foetal movements	
Yes	38 (45.2)
No	34 (40.5)
Not mentioned	12 (14.3)
Treatment response	
Full response	54 (64.3)
Partial response	9 (10.7)
Resistance	8 (9.5)
Not mentioned	13 (15.5)
Non-pharmacological management	
Yes	16 (19.0)
No	23 (27.4)
Not mentioned	45 (53.6)

Figures in parenthesis are percentages

## DISCUSSION

This systematic review reports suggests that about one-fourth of the patients had developed delusion of pregnancy after the age of 50 years. Possibly menopause and peri-menopause can enhance psychological stress and clinically significant psychiatric difficulties may develop during the life cycle's involutinal phases. Though females were the more common sufferers of delusion of pregnancy, several cases of such a delusion were documented in males.<sup>[20,24,29,48]</sup> Psychodynamically, development of delusion of pregnancy in man has been

**Table 3: Aetiological factors implicated**

Aetiological factors	n (percentage)
Psychosocial factors	
Rebirth fantasies	6 (7.1)
Wish-fulfilment	24 (28.6)
Parental deprivation	1 (1.2)
Over-identification, rivalry and projection	4 (4.8)
Loss of love or loss of a loved object	3 (3.6)
Strong identification with pregnant women	2 (2.4)
Disturbed family dynamics	3 (3.6)
Sexual abuse/sexual identity confusion	3 (3.6)
Intense ambivalence about pregnancy	1 (1.2)
Others	7 (8.3)
Not implicated	30 (35.7)
Coenaesthopathological processes	
Yes	17 (20.2)
No	67 (79.8)
Socio-cultural factors	
Not implicated	48 (57.1)
Chronic social deprivation	7 (8.3)
Excessive societal pressure to have children	13 (15.5)
Belief in the ability of spiritual deities or an evil eye to induce pregnancy	8 (9.5)
Others	8 (9.5)
Drug naive status during development of delusion of pregnancy	
Yes	30 (35.7)
No	48 (57.1)
Not mentioned	6 (7.1)
Hyperprolactinaemia-induced beliefs of pregnancy	
Yes	14 (16.7)
No	70 (83.3)
Symptoms of hyperprolactinaemia	
No hyperprolactinaemia	70 (83.3)
Asymptomatic	5 (6.0)
Symotomatic	9 (10.7)
Causes of hyperprolactinaemia	
No hyperprolactinaemia	70 (83.3)
Antipsychotic induced	13 (15.5)
Others	1 (1.2)
Psychotropic drug implicated	
Not implicated	71 (84.5)
Typical antipsychotics	2 (2.4)
Atypical antipsychotics	7 (8.3)
Multiple	4 (4.8)

Figures in parenthesis are percentages

construed as man's expression of frustrated creativity, his deep-rooted infantile envy of his wife's ability to bear a child, heightening of instinctual tension to an uncontrollable level and dramatic expression of identification with his mother.<sup>[55,56]</sup> Cases of delusion of pregnancy were described worldwide across all continents, though majority came from Europe or Asia.

Delusion of pregnancy was encountered in a variety of psychiatric disorders including schizophrenia, other psychotic disorder, mood disorders and organic brain disorder. This suggests that the phenomenon is nosologically non-specific and attempts should be made to look for other symptoms and see whether syndromal criteria for a psychiatric disorder have been met. Organic disorders which can present with delusion of pregnancy include epilepsy,<sup>[2,20,32,48]</sup> motor neuron disease,<sup>[27]</sup> dementia,<sup>[45,49]</sup> delirium,<sup>[45]</sup> metabolic syndrome,<sup>[25]</sup> primary hyperprolactinaemia and hasimotothyroiditis,<sup>[23]</sup> lung sarcoidosis with lung fibrosis,<sup>[28]</sup> primary sterility due to tubal cyst,<sup>[31]</sup> hypothyroidism and achalasia<sup>[35]</sup> and intermittent polydipsia and hyponatremia syndrome.<sup>[21]</sup> The duration of the delusion was variable, with about one-tenth of the sample having the delusion over 10 years, and one case had the delusion over 20 years.<sup>[28]</sup> Presence of multiple foetuses was reported in one-fifth of the cases, which may highlight the excessive societal pressure on women to have a large number of children.<sup>[6]</sup> We found that about 10% of the patients had reported of hearing voices of their foetuses. The authors did not find any discussion in the literature about this phenomenology, which has nosological significance as it could qualify for The International Classification of Diseases, 10th Revision (ICD-10) criteria of schizophrenia enlisted as 'other types of hallucinatory voices coming from some part of the body'.

It was found that 61.3% of patients had responded well on treatment. Rosch *et al.*<sup>[57]</sup> reported in a matched control study that patients with delusional pregnancy were more hostile and treatment resistant as compared with patients with other diagnoses. Non-pharmacological management was reported to be helpful in some cases. In view of the importance of psychological factors implicated in the development of a delusion of pregnancy in some patients, psychotherapeutic interventions can be taken into consideration while treating patients with such phenomenology.

This systematic review found that psychosocial factors were reported to be implicated in the genesis of a considerable number of cases with delusion of pregnancy. Pregnancy, which establishes an undisturbed relationship between the mother and the foetus, has been speculated to eliminate loneliness and helplessness.

Shankar<sup>[22]</sup> suggests that development of a delusional belief can be seen as an adaptive mechanism and can portray an individual's problems and experience. Similarly, loss of a loved object, acute loneliness and real or imagined loss of relationship were suggested to lead to a delusion of pregnancy in a wish-fulfilling manner.<sup>[22,57]</sup> Simon *et al.*<sup>[42]</sup> described two cases where a delusional pregnancy occurred shortly after delivery, during the postpartum period and seemed to be motivated by the wish to continue to be treated as if pregnant. Coenaesthopathological processes have been associated with development of delusion of pregnancy. Consequently, somatic sensations arising from the abdomen and endocrinological changes have been misinterpreted as signs of pregnancy.<sup>[36,47]</sup> Cognitive theory hypothesizes that delusions possibly arise from normal cognitive processes directed at explaining abnormal perceptual experiences,<sup>[58]</sup> and the role of body state information in influencing emotional states has been recognized.<sup>[59]</sup>

The role of socio-cultural factors in the development of delusion of pregnancy has been reported in patients, suggesting that contextual variables may exert influence particularly when pregnancy confers a higher valued social status.<sup>[24,32]</sup> Chronic social deprivation,<sup>[23,48]</sup> excessive societal pressure to have children<sup>[31,49]</sup> and belief in the ability of spiritual deities or an evil eye to induce pregnancy<sup>[47,48,53]</sup> have been suggested to lead to delusion of pregnancy. Chowdhury *et al.*<sup>[54]</sup> reported seven unusual cases of delusional puppy pregnancy in rural West Bengal, India wherein detailed phenomenological analysis revealed the special cultural background of the delusions. There is a strong belief in this particular region of India that a dog bite may evolve into a puppy pregnancy even in the human male. Qureshi aptly summarizes that delusional pregnancy appears in a web of socio-cultural themes.<sup>[11]</sup>

Prolactin secretion by the anterior pituitary directs metabolic and behavioural adaptations to the pregnant state and prepares for the care of offspring. Antipsychotic-induced hyperprolactinaemia leading to amenorrhoea and galactorrhoea could have acted as triggers for delusional beliefs of pregnancy in susceptible patients.<sup>[22]</sup> We found that hyperprolactinaemia was mentioned as the cause of delusion of pregnancy in about one-fifth of the published cases with risperidone being the most commonly implicated drug. Normalization of hyperprolactinaemia has led to the resolution of delusional pregnancy strengthening the evidence further.<sup>[44,52]</sup> Hence, when hyperprolactinaemia is observed in a patient with delusion of pregnancy, a prolactin-sparing antipsychotic agent (such as aripiprazole) may be considered as a preferred drug for treatment.

Though biological and psychological causations have been put forth for explaining the genesis of delusion of pregnancy, it is unlikely that one factor or theory holds completely true. Biological and psychological theory causations are probably offer complementary viewpoints in the genesis of this phenomenon.

Some limitations to the present study need to be considered which is likely to be inherent to any systematic review of this nature. Only published case-reports in English language journals were considered. Even though cases of delusion of pregnancy are more likely to be published when compared to other diseases because of the interesting and strange phenomenon, yet the published cases may not be representative of the general population. Another limitation pertains to data available from published studies only, and some of the studies could not be included. Robust quantitative analysis could not be performed as a part of the review, as it was based mainly upon the case reports.

To conclude, delusion of pregnancy is a heterogeneous symptom which emerges during the course of various neuropsychiatric syndromes. It occurs not only in women but also occurs in men. The delusion may have many social, psychological and biological determinants to its genesis. The treatment response can be considered good in about half of the patients, and pharmacology remains the mainstay of treatment.

## REFERENCES

1. Radhakrishnan R, Satheeshkumar G, Chaturvedi SK. Recurrent delusions of pregnancy in a male. *Psychopathology* 1999;32:1-4.
2. Chaturvedi SK. Delusions of pregnancy in men. Case report and review of the literature. *Br J Psychiatry* 1989;154:716-8.
3. American Psychiatric Association, American Psychiatric Association. *Diagnostic and statistical manual of mental disorders: DSM-5*. 5<sup>th</sup> ed. Washington: American Psychiatric Association; 2013.
4. Hardwick PJ, Fitzpatrick C. Fear, folie and phantom pregnancy: Pseudocyesis in a fifteen-year-old girl. *Br J Psychiatry* 1981;139:558-60.
5. Seeman MV. Pseudocyesis, delusional pregnancy, and psychosis: The birth of a delusion. *World J Clin Cases* 2014;2:338-44.
6. Cohen LM. A current perspective of pseudocyesis. *Am J Psychiatry* 1982;139:1140-4.
7. Tarín JJ, Hermenegildo C, García-Pérez MA, Cano A. Endocrinology and physiology of pseudocyesis. *Reprod Biol Endocrinol* 2013;11:39.
8. Sobrinho LG. Emotional aspects of hyperprolactinemia. *Psychother Psychosom* 1998;67:133-9.
9. Kazmierczak M, Kielbratowska B, Pastwa-Wojciechowska B. Couvade syndrome among Polish expectant fathers. *Med Sci Monit* 2013;19:132-8.
10. Masoni S, Maio A, Trimarchi G, de Punzio C, Fioretti P. The couvade syndrome. *J Psychosom Obstet Gynaecol* 1994;15:125-31.
11. Qureshi NA. Delusional pregnancy. *Indian J Psychiatry* 1999;41:384.
12. de Pauw KW. Three thousand days of pregnancy. A case of monosymptomatic delusional pseudocyesis responding to pimozide. *Br J Psychiatry* 1990;157:924-8.
13. Rajagopalan M, Varma SL. Urinary tract infection and delusion of pregnancy. *Aust N Z J Psychiatry* 1997;31:775-6.
14. Byrd RP, Byrd RP Jr, Roy TM. False pregnancy: An unusual paraneoplastic syndrome associated with bronchogenic neoplasm. *J Ky Med Assoc* 1993;91:501-3.
15. Bernardo M, Pintor L, Arrufat F, Salva J, Buisan E. Delusion of pregnancy in psychotic depression and ECT response. *Convuls Ther* 1996;12:39-40.
16. Aronson GJ. Delusion of pregnancy in a male homosexual with an abdominal cancer. *Bull Menninger Clin* 1952;16:159-66.
17. Ahuja N, Vasudev K, Lloyd A. Hyperprolactinemia and delusion of pregnancy. *Psychopathology* 2008;41:65-8.
18. Yadav T, Balhara YP, Kataria DK. Pseudocyesis Versus Delusion of pregnancy: Differential diagnoses to be kept in mind. *Indian J Psychol Med* 2012;34:82-4.
19. Varma SL, Katsenos S. Delusion of pregnancy. *Aust N Z J Psychiatry* 1999;33:118.
20. Tényi T, Herold R, Fekete S, Kovács A, Trixler M. Coexistence of delusions of pregnancy and infestation in a male. *Psychopathology* 2001;34:215-6.
21. Shiwach RS, Dudley AF. Delusional pregnancy with polydipsia: A case report. *J Psychosom Res* 1997;42:477-80.
22. Shankar R. Delusion of pregnancy in schizophrenia. *Br J Psychiatry* 1991;159:285-6.
23. Penta E, Lasalvia A. Delusion of pregnancy in a drug-naïve young woman showing hyperprolactinemia and hypothyroidism: A case report. *Gen Hosp Psychiatry* 2013;35:679.e1-3.
24. Miller LJ, Forcier K. Situational influence on development of delusions of pregnancy in a man. *Am J Psychiatry* 1992;149:140.
25. Manjunatha N, Saddichha S. Delusion of pregnancy associated with antipsychotic induced metabolic syndrome. *World J Biol Psychiatry* 2009;10:669-70.
26. Manoj PN, John JP, Gandhi A, Kewalramani M, Murthy P, Chaturvedi SK, et al. Delusion of test-tube pregnancy in a sexually abused girl. *Psychopathology* 2004;37:152-4.
27. Larner AJ. Delusion of pregnancy in frontotemporal lobar degeneration with motor neurone disease (FTLD/MND). *Behav Neurol* 2008;19:199-200.
28. Kornischka J, Schneider F. Delusion of pregnancy. A case report and review of the literature. *Psychopathology* 2003;36:276-8.
29. Jenkins SB, Revita DM, Tousignant A. Delusions of childbirth and labor in a bachelor. *Am J Psychiatry* 1962;118:1048-50.
30. Knight JA. False pregnancy in a male. *Psychosom Med* 1960;22:260-6.
31. Griengl H. Delusional pregnancy in a patient with primary sterility. *J Psychosom Obstet Gynaecol* 2000;21:57-9.
32. Bhattacharyya S, Chaturvedi SK. Metamorphosis of delusion of pregnancy. *Can J Psychiatry Rev Can Psychiatr* 2001;46:561-2.
33. Kanu IO, Coker AO, Kolade AG. Delusion of pregnancy in a patient with bipolar affective disorder: A case report. *Niger J Clin Med* 2013;4:1-2.
34. Adityanjee AM. Delusion of pregnancy in males: A case report and literature review. *Psychopathology* 1995;28:307-11.
35. Lopes RD, Banzato CE, Santos A. Pregnancy delusion hinders the diagnosis of achalasia in a patient with

- life-threatening emaciation. *Oxf Med Case Rep* 2014;2014:52-4.
36. Bitton G, Thibaut F, Lefevre-Lesage I. Delusions of pregnancy in a man. *Am J Psychiatry* 1991;148:811-2.
  37. Bianchi-Demicheli F, Lüdicke F, Chardonnes D. Imaginary pregnancy 10 years after abortion and sterilization in a menopausal woman: A case report. *Maturitas* 2004;48:479-81.
  38. Cramer B. Delusion of pregnancy in a girl with drug-induced lactation. *Am J Psychiatry* 1971;127:960-3.
  39. Chatterjee SS, Nath N, Dasgupta G, Bhattacharyya K. Delusion of pregnancy and other pregnancy-mimicking conditions: Dissecting through differential diagnosis. *Med J Dr DY Patil Univ* 2014;7:369.
  40. Chengappa KN, Steingard S, Brar JS, Keshavan MS. Delusions of pregnancy in men. *Br J Psychiatry* 1989;155:422-4.
  41. Rocha X, Begolli M, Santos L, O'Brien M, Rivera F. Folie A Deux including a shared delusion of pregnancy. *Int J Psychiatry* 2009;1.
  42. Simon M, Vörös V, Herold R, Fekete S, Tényi T. Delusions of pregnancy with post-partum onset: An integrated, individualized view. *Eur J Psychiatry* 2009;23:234-42.
  43. Tenyi T, Trixler M, Jadi F. Psychotic couvade: 2 case reports. *Psychopathology* 1996;29:252-4.
  44. Ali JA, Desai KD, Ali LJ. Delusions of pregnancy associated with increased prolactin concentrations produced by antipsychotic treatment. *Int J Neuropsychopharmacol* 2003;6:111-5.
  45. Curran JS, Pugh RE. Delusions of pregnancy and delivery in elderly women. *Int J Geriatr Psychiatry* 1995;10:1075-6.
  46. Manjunatha N, Sarma PK, Math SB, Chaturvedi SK. Delusional procreation syndrome: A psychopathology in procreation of human beings. *Asian J Psychiatry* 2010;3:84-6.
  47. Dutta S, Vankar GK. Delusions of pregnancy-a report of four cases. *Indian J Psychiatry* 1996;38:254-6.
  48. Michael A, Joseph A, Pallen A. Delusions of pregnancy. *Br J Psychiatry* 1994;164:244-6.
  49. Harland RF, Warner NJ. Delusions of pregnancy in the elderly. *Int J Geriatr Psychiatry* 1997;12:115-7.
  50. Camus V, Schmitt L, Foulon C, Lima CA, Wertheimer J. Pregnancy delusions in elderly depressed women: A clinical feature of Cotard's syndrome? *Int J Geriatr Psychiatry* 1995;10:1071-3.
  51. Coker AO, Ladapo HT, Lawal RA, Malomo IO. Delusion of pregnancy: Case reports and review of the literature. *Niger J Psychiatry* 2009;7:32-3.
  52. Ahuja N, Moorhead S, Lloyd AJ, Cole AJ. Antipsychotic-induced hyperprolactinemia and delusion of pregnancy. *Psychosomatics* 2008;49:163-7.
  53. Qureshi NA, Al-Habeeb TA, Al-Ghamdy YS, Abdelgadir MH, Quinn JG. Delusions of pregnancy in Saudi Arabia: A socio-cultural perspective. *Transcult Psychiatry* 2001;38:231-42.
  54. Chowdhury AN, Mukherjee H, Ghosh KK, Chowdhury S. Puppy pregnancy in humans: A culture-bound disorder in rural West Bengal, India. *Int J Soc Psychiatry* 2003;49:35-42.
  55. Jacobson E. Some uncommon psychiatric syndromes. In: Enoch MD, Trethowan WH, Barker JC, editors. *Bristol: Wright*; 1967.
  56. Freeman T. Pregnancy as a precipitant of mental illness in men. *Br J Med Psychol* 1951;24:49-54.
  57. Rosch DS, Sajatovic M, Sivec H. Behavioral characteristics in delusional pregnancy: A matched control group study. *Int J Psychiatry Med* 2002;32:295-303.
  58. Chadwick PD, Lowe CF. A cognitive approach to measuring and modifying delusions. *Behav Res Ther* 1994;32:355-67.
  59. Teasdale JD. Emotional processing, three modes of mind and the prevention of relapse in depression. *Behav Res Ther* 1999;37:S53-77.

**How to cite this article:** Bera SC, Sarkar S. Delusion of pregnancy: A systematic review of 84 cases in the literature. *Indian J Psychol Med* 2015;37:131-7.

**Source of Support:** Nil, **Conflict of Interest:** None.

#### Announcement

#### iPhone App



Download  
iPhone, iPad  
application

FREE

A free application to browse and search the journal's content is now available for iPhone/iPad. The application provides "Table of Contents" of the latest issues, which are stored on the device for future offline browsing. Internet connection is required to access the back issues and search facility. The application is Compatible with iPhone, iPod touch, and iPad and Requires iOS 3.1 or later. The application can be downloaded from <http://itunes.apple.com/us/app/medknow-journals/id458064375?ls=1&mt=8>. For suggestions and comments do write back to us.