We included 336 patients. Our population was mostly white (95.1%) female patients (66.7%) with a young age of onset (mean 12.8 years) and positive family history (58.3%). Table I displays GSMs and patient characteristics. The sample sizes for the GSMs were 27 (mild), 84 (moderate), and 157 (severe) for axillary hyperhidrosis; 30 (mild), 53 (moderate), and 91 (severe) for palmar hyperhidrosis; and 35 (mild), 55 (moderate), and 55 (severe) for plantar hyperhidrosis. A difference in GSMs between different levels of disease severity was found (Fig 1). Statistically significant differences were observed between palmar and plantar GSMs. Patients with palmar hyperhidrosis had mean ± standard deviation GSMs of 276 ± 265 mg/5 minutes (mild), 345 ± 274 mg/5 minutes (moderate), and 452 ± 313 mg/5 minutes (severe) ($P < .0001$). Patients with plantar hyperhidrosis had mean ± standard deviation GSMs of 300 ± 276 mg/5 minutes (mild), 399 ± 471 mg/5 minutes (moderate), and 457 ± 324 mg/5 minutes (severe) ($P = .01$). Substantial overlap exists in the interquartile ranges across all body sites.

Overall, patient characteristics did not have a relationship with GSMs. Like previous reports, GSMs were highly variable across all sites.[4] When stratified by disease severity, each group had large variances in GSMs. Although some positive trends between GSMs and HDSS scores were found, significant overlap of the interquartile ranges suggest a single low GSM is not necessarily indicative of less severe disease.

Discrepancies between subjective and objective measures of sweating have been reported but not with validated questionnaires.[3,4] The discrepancy is likely because GSMs capture a 5-minute snapshot, which might fail to capture the full disease burden. Hyperhidrosis is a complex disease with numerous triggers affecting professional, social, and personal lives. Although objective and subjective measurements might play complementary roles, a single GSM should not invalidate the patient experience. This study is limited by a plausible selection bias, use of a single questionnaire, and the use of a single GSM.

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Folie à famille: A systematic review of shared delusional infestation

To the Editor: Delusional infestation (DI) is encountered by almost all dermatologists during their careers but is very difficult to manage in the dermatology clinic. Patients presenting with DI require significant time and effort, but it is not

Table I. Overall characteristics of identified patients with of delusional infestation in multiple related patients

Characteristic	Patients
Primary patient identified, No. (%)	18 (100)
Female, No. (%)	11 (61)
Age, average (range), y	54.4 (19-87)
Married, No. (%)	10 (56)
Secondary patient identified, No. (%)	32 (100)
Female, No. (%)	19 (59)
Age, average (range), y	37.0 (1.5-81)
Relationship to inducer	
Child, No. (%)	12 (41)
Spouse, No. (%)	9 (31)

Table II. Results of treatment of delusional infestation in multiple related patients

Source	Primary	Secondary	Treatment, primary	Result, primary	Treatment, secondary	Result, secondary
Ahmed et al, *Pediat Derm*. 2015;32(3): 397-400.	34 y/o F	3 y/o F (daughter) 4 y/o F (daughter) 7 y/o F (daughter)	Risperidone 1 mg/d, narrowband UVB, emollients, soap substitutes	Gradual improvement in symptoms, significantly less agitation and concern without further relapse	4 y/o F, 7 y/o F: loratadine 5 mg/d, 0.1% betamethasone valerate for scalp, bath emollient, social services 3 y/o F: clotrimazole 1% cream for diaper area, social services	Gradual improvement in symptoms without further relapse
Altunay et al, *Int J Psychiatry Med*. 2012;44(4): 335-50.	51 y/o F	Children	Quetiapine 50 mg/d, fluoxetine 20 mg/d, vitamin B_{12} parenterally 1000 μg/d	Cessation of symptoms by 2 months	None	Resolution of delusions of worm infestation without treatment by 2 months
Bourgeois et al, *Br J Psychiatry*. 1992;161(5): 709-11.	58 y/o F	M (husband)	Hospital admission, levomepromazine	No change in symptoms	None	Resolution of delusions without treatment upon admission of primary to hospital
Colombo et al, *Eur Psychiatry*. 2004;19(2): 115-6.	75 y/o F	55 y/o F (daughter) M (son-in-law)	Risperidone 3 mg/d	Lost to follow-up	Risperidone 3 mg/d	Lost to follow-up
Daniel et al, Indian *J Dermatol Venereol Leprol*. 2004;70(5): 296-297.	F	44 y/o M (husband) 16 y/o F (daughter) 18 y/o F (daughter)	Refused treatment	…	Refused treatment	…
Daulatabad et al, *Australasian J Dermatol*. 2017;58(3): e113-6.	36 y/o M	1.5 y/o F (daughter) F (wife)	Refused treatment, left against medical advice	Lost to follow-up	Child protective services	Lost to follow-up

Friedmann et al, *B J Dermatol*. 2006;155(4): 841-2.	35 y/o F	M (husband) 6 y/o M (son)	Risperidone 1.5 mg/d	Dramatic improvement in symptoms and signs within 1 month, resolution of delusion with improvement of skin	None	Resolution of delusions and symptoms without treatment within 1 month
Giam et al, *Asian J Psychiatr*. 2017;28:152-3.	19 y/o M	F (mother)	Oral aripiprazole followed by intramuscular aripiprazole monthly	Slight improvement in intensity of delusions, insight only partially improved	Psychoeducation	Continued to have share delusions about parasitic infestations
Gieler et al, *Dermatology*. 1990;181(2): 122-5.	82 y/o M	80 y/o F (wife) 54 y/o F (daughter)	Oral haloperidol	Improvement in symptoms by 3 years, reduction in intensity of delusions with mild relapses	Oral haloperidol	Before treating index patient: antihistamines completely decreased the itch but did not change the delusions, and treatment with oral neuroleptic did not change the delusions in the 54 y/o F. After concurrent treatment of index patient: improvement in symptoms and delusions at 3 year follow-up
Kim et al, *J Korean Medi Sci*. 2003;18(3):462.	55 y/o F	33 y/o M (son)	Hospitalization, quetiapine 800 mg/d for 4 weeks, pimozide 4 mg/d	Marked improvement in symptoms after 4 weeks of quetiapine, which further subsided after 7 days of pimozide	Risperidone 3 mg/d	Still endorsed delusions after mother's hospitalization. Resolution of sensation of bugs with risperidone treatment, but still endorsed feeling of eggs on the skin
Macaskill et al, *Br J Psychiatry*. 1987;150(2): 261-3.	55 y/o M	54 y/o M (friend)	Supportive discussion weekly, patient self-treated with fumigation and repeated bathing	Resolution of symptoms after 5 weeks, remained symptom-free at 1 year	Avoided contact with the patient	Resolution of symptoms 14 days after index patient was cured, remained symptom-free at 1 year

Continued

Table II. Cont'd

Source	Primary	Secondary	Treatment, primary	Result, primary	Treatment, secondary	Result, secondary
Sawant et al, *Ind Psychiatry J*. 2015;24(1):97.	55 y/o F	F (mother)	Risperidone 6 mg/d for 3 months	Amelioration of symptoms at 3 months	Refused separation	Lost to follow-up
Sawant et al, *Ind Psychiatry J*. 2015;24(1):97.	37 y/o F	F (mother-in-law)	Risperidone 4 mg/d for 3 months	Near total resolution of symptoms at 3 months	None	Amenable in behavior toward physicians
Sawant et al, *Ind Psychiatry J*. 2015;24(1):97.	67 y/o M	F (wife)	Risperidone 3 mg/d for 3 months	Reduction in itching at 3 months	None	Happy with the results of treatment
Schwartz et al, *J Travel Med*. 2001;8(1):26-8.	56 y/o F	55 y/o M (husband) 23 y/o M (son) 76 y/o F (mother-in-law) 28 y/o F (niece)	Refused psychiatric treatment, symptomatic treatment	Significant improvement in intensity of delusions at 18 months	Refused psychiatric treatment, symptomatic treatment	Significant improvement in intensity of delusions at 22 months
Sugahara et al, *Psychosomatics*. 2000;41(5):447.	78 y/o M	F (wife)	Pimozide 2.6 mg/d	70% improvement in delusional symptoms by 2 weeks, almost complete improvement in delusional symptoms by 6 months	None	Resolution of delusion
Trigka et al, *Int J Artif Organs*. 2012;35(5): 400-403.	87 y/o M	81 y/o M (social contact)	Mirtazapine 10 mg/d, risperidone 0.5 mg/d	Remission of symptoms after 2 months, some relapses afterwards lasting for 1 or 2 weeks	Olanzapine 5 mg/d, polidocanol-panthenol cream	Partial remission of symptoms after 1 month, symptoms relapsed after 2 months
Waddell et al, *J Am Acad of Dermatol*. 2006;55(5): 914-5.	-	57 y/o M (brother) 44 y/o F (friend) F (sister)	…	…	Counseling	…
Wenning et al, *Ann Clin Psychiatry*. 2003;15 (3-4):233-9.	44 y/o F	M (husband)	Quetiapine 150 mg bid	Improvement in delusions within 3 days, still believed worms to be present on body but could not feel them	-	…

bid, Twice daily; *F*, female; *M*, male; *y/o*, years old; *UVB*, ultraviolet B.

uncommon to have multiple patients with DI presenting at the same appointment, with up to 28% of cases of DI occurring as shared DI or DI by proxy.[1] These patients may reinforce each others' delusions, are often not amenable to pharmacologic therapy on initial presentation, and thus present a unique therapeutic challenge to dermatologists.

A literature search using the MEDLINE health literature database was conducted to identify cases of shared DI or DI by proxy. Articles were included if they studied multiple patients with shared DI and were published before May 2, 2018.

We identified 78 potentially relevant citations, with 19 case reports of shared DI or DI by proxy ultimately being included in our study. A clear primary case or "inducer" was identified in 18 cases. Inducers tended to be female, middle-aged, and married (Table I). Secondary DI affected patients ranged in age from 18 months to 81 years. Most commonly, secondary cases occurred in children (41%) and spouses (31%) of inducers, but also affected parents, relatives-by-marriage, and other close social contacts.

Antipsychotic medications were used in 14 patients, resulting in significant improvement in 10 (71%) (Table II). Antidepressants, supportive discussion, nutritional supplementation, and symptomatic management of pruritus, pain, and sleep disturbance were also helpful in treating these patients. DI developed secondarily in 7 of 32 patients (22%), who received no treatment yet experienced resolution of their delusions as the primary patient improved.

When DI develops in multiple closely related patients, identification of the index patient is important. This patient is the first to develop the DI and is often the dominant figure in their relationship with the secondary patient.[2] Risk factors for secondary patients developing shared DI include living close together or having a very close relationship to an index patient affected by DI, female sex, and social isolation resulting from language or culture.[2]

Leaving the primary patient untreated may cause the secondary patients' delusions to be more recalcitrant to treatment. One case report discussed a patient who had previously been treated with oral neuroleptics but continued to have delusions, which only cleared upon successful treatment of her father, the primary patient.[3] Patients with treatment-resistant DI should be questioned about close contacts with similar symptoms, because an untreated index patient may prevent these patients from fully improving.

Separation of the secondary patient from the index patient is sometimes suggested for shared psychotic disorders,[4] but this is typically not possible for DI patients in the dermatology clinic. Successful identification and treatment of the primary or index patient, oftentimes with antipsychotic medications, is necessary to effectively manage patients with secondary DI. Resolution of the primary patient's delusions and symptoms can often result in significant improvement for the secondary patient, even without further treatment.

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