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Sexual difficulties and associated factors among patients with psoriasis in Malaysia: data from the Malaysian Psoriasis registry

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ABSTRACT

The impact of psoriasis on quality of life may have implications for the sexual function of patients. We aimed to determine the frequency of sexual difficulties and associated factors among adult patients with psoriasis. This cross-sectional study involved 13 673 patients notified to the Malaysian Psoriasis Registry. Sexual function was defined based on the Dermatology Life Quality Index (DLQI). Sexual difficulties were reported among 9.5% of subjects with significant predictors identified as younger age, male gender, married status, ethnicity, nail involvement, face and neck involvement and severity of disease. Smokers were more likely to report experiencing sexual difficulties. However, the presence of either ischemic heart disease, diabetes mellitus, hypertension or dyslipidemia was associated with lower odds of sexual issues due to psoriasis. Clinicians should be aware of factors associated with sexual health in psoriasis to implement targeted interventions. Further studies need to be conducted to delineate the different aspects of sexual function and the magnitude of the problem.

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physical illness; reproductive health; adult sexuality; sexual dysfunction

Introduction

Psoriasis is a systemic, inflammatory and chronic disorder which mainly affects the skin and joints. 3.2% of the adult population of the United States of America have psoriasis (Rachakonda et al., 2014). Among outpatients attending a Dermatology clinic in Malaysia, 9.5% were treated for psoriasis (Sinniah et al., 2010). A systematic review found that 40.0% to 55.6% of patients with psoriasis had sexual dysfunction and 34.2% to 81.1% had erectile dysfunction. The authors found that anxiety, depression, psoriatic arthritis and genital involvement were associated with sexual dysfunction (Molina-Leyva et al., 2018).

More than one-third (35.3%) of people living with psoriasis in one study reported inhibition in sexual relationships due to their skin condition, thus affecting their health state (Weiss et al., 2002). Another study on 936 patients reported that 35.3% to 71.3% had psoriasis-related sexual issues and factors associated with sexual impairment were disease

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severity and psychological morbidity (Sampogna et al., 2007). 40.8% of patients surveyed had less sexual activity since developing psoriasis and associated factors were joint involvement, increased lesions over groins, scaling, pruritus, depression and interpersonal dependency. Interestingly, 42.6% of these patients attributed the decline to the impact of their own sex drives compared to 14.9% who attributed this phenomenon to the decline in their partners' sex drive (Gupta & Gupta, 1997).

Baseline data from the PHOENIX 1 and PHOENIX 2 trials reported impaired sexual function in 22.6% of all patients with more females (27.1%) than males (20.8%) presenting with these issues. These studies also found a correlation between sexual difficulties and disease severity at baseline (Guenther et al., 2011).

Males with psoriasis in Taiwan reported higher incidence of sexual dysfunction compared to controls (3.03% vs. 2.34%, $p < 0.001$) (Chen et al., 2013). The higher frequency of erectile dysfunction among males with psoriasis has been attributed to smoking, anxiety and depression (Molina-Leyva et al., 2016). Males with psoriasis had higher rates of erectile dysfunction, associated with independent risk factors of older age and hypertension (Goulding et al., 2011). A negative correlation between disease severity and sexual satisfaction has been reported among females with psoriasis while those with genital lesions had more impairment of sexual function (Maaty et al., 2013).

Based on the Dermatology Life Quality Index (DLQI), the presence of problems with partner or friend was correlated with sexual difficulties (Sampogna et al., 2007). Sexual dysfunction in people with moderate to severe psoriasis, as measured by the Massachusetts General Hospital-Sexual Functioning Questionnaire, has been associated with anxiety, depression and involvement of specific areas including the genitals, buttocks, abdominal and lumbar regions (Molina-Leyva et al., 2015). Genital psoriasis, in particular, impacts the quality of life both generally and sexually (Czuczwar et al., 2016; Meeuwis et al., 2011).

There is a scarcity of data in our population regarding the impact of psoriasis on sexual issues and quality of life considering the unique social and cultural factors encountered in a multi-ethnic Asian society, particularly in a Muslim-majority context. This cross-sectional observational study was performed to determine the frequency of sexual difficulties and to evaluate associated factors among adult patients with psoriasis in Malaysia based on the database of a nationwide psoriasis registry. We hope that our findings will aid clinicians in focusing on the different needs of people living with psoriasis and inform public health policy makers regarding the impact of psoriasis on patients' quality of life and interpersonal relationships.

Materials and methods

Sample population

Adult patients with psoriasis aged 17 years and above were recruited via convenience sampling from 25 outpatient Dermatology clinics in Malaysia between 2007 and 2016 based on notification to the Malaysian Psoriasis Registry. This registry is a centralized electronic database where data from each patient were collected at baseline and subsequently every 6 months. The diagnosis of psoriasis was made based on clinical assessment and histopathological confirmation was optional. Information collected for the MPR

database include sociodemographic characteristics, aggravating factors, comorbidities, types of psoriasis, nail or joint involvement, and types of treatment used (Mohd Affandi et al., 2018). This study was reviewed and approved by the National Medical Research Register of Malaysia [Approval number NMRR-09-984-3482 (IIR)].

Severity of psoriasis

Disease severity was assessed based on the body surface area (BSA) involvement using the rule of nines (Ashcroft et al., 1999) Percentage of BSA involvement was assessed during physical examination. Mild psoriasis was defined as BSA ≤10 while moderate to severe psoriasis was defined as BSA >10 (Finlay, 2005; Mrowietz et al., 2011).

Quality of life

The DLQI is a self-reported questionnaire assessing quality of life which is specific to dermatology (Finlay & Khan, 1994). The questionnaire consists of 10 questions covering domains of symptoms and feelings, daily activities, leisure, work and school, personal relationships and treatment over the preceding week. Scores between 0 (indicating 'not at all') to 3 (indicating 'very much') are assigned for responses to individual questions. Total scores are summed up and ranged from 0 (no impairment) to 30 (maximum impairment). Severe impairment in quality of life was defined as DLQI scores of 10 and above (Nyunt et al., 2015). Cronbach's α for DLQI was 0.891.

Sexual difficulties

Question 9 of the DLQI is 'over the last week, how much has your skin caused any sexual difficulties?' Responses were dichotomized into either 'yes', as defined by scores 2 ("a lot) or 3 ('very much') indicating presence of sexual difficulties (Guenther et al., 2011), or 'no' for all other scores.

Statistical analysis

Data analyses were conducted using Statistical Package for the Social Sciences (SPSS) version 20. For the purpose of statistical analysis, age was stratified into 17–40 year, 41–60 years and more than 60 years while age of onset was stratified into those with onset at 40 years and below (type 1) or onset at more than 40 years of age (type 2). The types of psoriasis were dichotomized into either flexural psoriasis or non-flexural psoriasis as flexural psoriasis is often distributed in areas of sexual interest (Gupta & Gupta, 1997; Molina-Leyva et al., 2015). The chi squared test was used to identify potential associations between demographic factors, disease characteristics and severity, comorbidities, treatment and the presence of impaired sexual function. Fisher's exact test was used where appropriate. The independent *t* test was used to compare continuous variables for parametric data. Multivariate logistic regression was performed to identify independent predictors of impaired sexual function. Significance testing ($p < 0.2$) was performed to identify potential confounders. The Hosmer-Lemeshow goodness of fitness test for logistic regression was performed while multicollinearity was investigated but not

found. Missing data were excluded from analysis. All tests were two-tailed with statistical significance defined as $p < 0.05$.

Results

Baseline characteristics

We recruited 13 673 adult patients with psoriasis within the study period. More than half, 56.6% (n = 7 738) were male. The mean age of respondents was 45.0 years old (standard deviation, SD 16.2 years). Overall mean DLQI score was 8.5 (SD = 6.6). Based on question 9 of DLQI, 9.5% (n = 1 297) of respondents reported impaired sexual function.

Sociodemographic factors

Younger respondents and those with an earlier onset of psoriasis were significantly more likely to present with impaired sexual function (41.65 vs 45.41 years, p < 0.001, mean difference 3.752 and 32.24 vs. 34.93 years, p < 0.001, mean difference 2.689, respectively). Males and married respondents were more likely to report issues with sexual difficulties (Tables 1 and 2). All other ethnicities had higher frequencies of impaired sexual function compared to respondents of Malay ethnicity (reference group) (Table 1).

Disease characteristics and treatment

Factors associated with impaired sexual function were moderate to severe psoriasis (BSA involvement >10%) (odds ratio, OR = 2.55), severe face and neck involvement (OR = 2.28), nail psoriasis (OR = 1.28), psoriatic arthritis (OR = 1.42) and the use of systemic treatment (OR = 1.36) (Tables 1 and 2).

Comorbidities

Respondents with ischemic heart disease (OR = 0.74), diabetes mellitus (OR = 0.78), hypertension (OR = 0.70) and dyslipidemia (OR = 0.74) were less likely to report impaired sexual function (Tables 1 and 2). Conversely smokers were more likely (OR = 1.63) to have impaired sexual function (Tables 1 and 2).

Independent predictors based on logistic regression models

We found that age, male gender, married status, ethnicities other than Malay or Bumiputera, nail involvement, face and neck involvement and severe disease were independent predictors of impaired sexual function (Table 3).

Discussion

Our data indicates a lower frequency of sexual difficulties (9.5%) reported among people living with psoriasis compared to previously published data, even the baseline data from the PHOENIX 1 and PHOENIX 2 trials which utilized a similar methodology in terms of

Table 1. Baseline characteristics of people living with psoriasis in Malaysia.

	Sexual function			
	Impaired (n = 1 297)	Not impaired (n = 12 376)	χ2 statistic (df)	p-value[a]
Factors	n (%)	n (%)		
Age			131.08 (2)	**<0.001**
17–40 years	648 (11.5)	4 996 (88.5)		
41–60 years	549 (10.2)	4 821 (89.8)		
>60 years	100 (3.8)	2 559 (96.2)		
Age of onset			43.97 (1)	**<0.001**
≤40 years (Type 1)	933 (10.7)	7 803 (89.3)		
>40 years (Type 2)	334 (72)	4 330 (92.8)		
Unknown	30 (11.0)	243 (89.0)		
Duration of disease			0.28 (1)	0.600
≤5 years	532 (9.6)	5 002 (90.4)		
>5 years	735 (9.3)	7 131 (90.7)		
Unknown	30 (11.0)	243 (89.0)		
Gender			24.46 (1)	**<0.001**
Male	818 (10.6)	6 920 (89.4)		
Female	479 (8.1)	5 456 (91.9)		
Ethnicity			-	**0.002[b]**
Malay (ref)	600 (8.8)	6 243 (91.2)		
Chinese	283 (9.7)	2 624 (90.3)		
Indian	226 (9.5)	2 148 (90.5)		
Orang Asli (aboriginal people)	3 (16.7)	15 (83.3)		
Miscellaneous	184 (12.0)	1 343 (88.0)		
Unknown	1 (25.0)	3 (75.0)		
Marital status			25.31 (1)	**<0.001**
Married	959 (10.2)	8 484 (89.8)		
Not married	278 (7.3)	3 510 (92.7)		
Unknown	60 (13.6)	382 (86.4)		
Comorbidities				
Ischemic heart disease	58 (7.3)	737 (92.7)	4.62 (1)	**0.032**
Cerebrovascular disease	23 (10.1)	204 (89.9)	0.11 (1)	0.737
Diabetes mellitus	192 (7.8)	2 277 (92.2)	9.52 (1)	**0.002**
Hypertension	272 (7.4)	3 413 (92.6)	25.18 (1)	**<0.001**
Dyslipidemia	194 (7.5)	2 404 (92.5)	14.42 (1)	**<0.001**
Smoking status			14.58 (1)	**<0.001**
Current smoker	72 (14.3)	443 (85.7)		
Non-smoker	1 223 (9.3)	11 933 (90.7)		
Obesity			0.01 (1)	0.923
Non-obese (BMI<25)	556 (9.5)	5 288 (90.5)		
Obese (BMI≥25)	741 (9.5)	7 088 (90.5)		
Types of psoriasis			0.18 (1)	0.675
Flexural/inverse	5 (7.9)	58 (92.1)		
Non-flexural	1 216 (9.5)	11 598 (90.5)		
Unknown	76 (9.5)	720 (90.5)		
Severity of disease			165.08 (1)	**<0.001**
BSA≤10	491 (6.8)	6 703 (93.2)		
BSA>10	346 (15.7)	1 851 (84.3)		
Unknown	460 (10.7)	3 822 (89.3)		
Face and neck involvement			10.33 (1)	**0.001**
Non-severe	1 220 (9.4)	11 753 (90.6)		
Severe	18 (19.1)	76 (80.9)		
Unknown	59 (9.7)	547 (90.3)		
Nail involvement				
Yes	817 (10.3)	7 115 (89.7)	16.48 (1)	**<0.001**
No	449 (8.2)	5 018 (91.8)		
Unknown	31 (11.3)	243 (88.7)		
Joint disease			20.07 (1)	**<0.001**
Yes	224 (12.3)	1 604 (87.7)		
No	1 036 (9.0)	10 525 (91.0)		
Unknown	37 (13.0)	247 (87.0)		

(*Continued*)

Table 1. (Continued).

Factors	Sexual function: Impaired (n = 1 297) n (%)	Sexual function: Not impaired (n = 12 376) n (%)	χ2 statistic (df)	p-value[a]
Systemic therapy			19.50 (1)	**<0.001**
Yes	299 (11.8)	2 243 (88.2)		
No	953 (8.9)	9 742 (91.1)		
Unknown	45 (10.3)	391 (89.7)		
Biologics			1.09 (1)	0.298
Yes	5 (6.1)	77 (93.9)		
No	1 233 (9.5)	11 782 (90.5)		
Unknown	59 (10.2)	517 (89.8)		
Phototherapy			3.52 (1)	0.061
Yes	49 (12.2)	353 (87.8)		
No	1 199 (9.4)	11 550 (90.6)		
Unknown	49 (9.4)	473 (90.6)		

BMI = body mass index, BSA = body surface area
*Over a 6-month period
**Unknown cases were not included in the analysis
[a]Chi-square test
[b]Fisher exact test

defining impaired sexual function using DLQI (Guenther et al., 2011). We postulate that the lower frequency of sexual health issues reported by respondents in our population could be attributed to sociocultural factors and conservatism as Asians may be less likely to discuss sexual-related health issues with healthcare providers due to underlying anxiety or embarrassment (Kalra et al., 2014). Similarly, a study conducted among male patients with psoriasis in another Asian country also found that only 3.03% reported sexual difficulties, compared to 20.8% in the PHOENIX trials (Chen et al., 2013; Guenther et al., 2011). Nonetheless, our study indicates that almost 1 in 10 people living with psoriasis in Malaysia experience sexual health issues related to their disease and this may affect their quality of life as well as their relationships with their partners.

More males report experiencing sexual difficulties related to psoriasis compared to females (10.6% vs. 8.1%). However, it may be argued that the conservative nature of Asian cultures may lead to a reluctance among women to discuss sexual issues and thus the magnitude of the issue may be underreported (Kalra et al., 2014) as the PHOENIX 1 and 2 trials as well as data from Italy have indicated higher frequencies of sexual difficulties among females compared to males (Guenther et al., 2011; Sampogna et al., 2007). Awareness regarding these gender differences in the context of local sensitivities may be helpful for clinicians in terms of addressing the holistic care and specific needs of people living with psoriasis in a culturally-appropriate manner.

In the context of our complex sociocultural milieu, our findings that more married respondents reported experiencing sexual difficulties are perhaps unsurprising. A cross-sectional study conducted among young women in Malaysia found that majority of respondents were not comfortable with the practice of premarital sex, particularly among the Muslim Malay community (Wong, 2012). Nevertheless, 7.3% of unmarried respondents in our study reported sexual difficulties, which indicate that the impact of psoriasis on this aspect of life cuts across demographic lines.

Table 2. Factors associated with impaired sexual function in people living with psoriasis in Malaysia.

Factors	Odds ratio (OR)	95% CI
Age		
17–40 years	3.32	2.68, 4.12
41–60 years	2.91	2.34, 3.63-
>60 years	1.00	
Age of onset		
≤40 years (Type 1)	1.00	-0.57, 0.74
>40 years (Type 2)	0.65	
Gender		
Male	1.35	1.20, 1.52-
Female	1.00	
Ethnicity		
Malay and other bumiputera groups	0.85	0.758, 0.954-
Other ethnicities	1.00	
Marital status		
Married	1.43	1.24, 1.64-
Not married	1.00	
Comorbidities		
Ischemic heart disease	0.74	0.56, 0.98
Diabetes mellitus	0.78	0.66, 0.91
Hypertension	0.70	0.61, 0.81
Dyslipidemia	0.74	0.63, 0.86
Smoking status		
Current smoker	1.63	1.27, 2.10-
Non-smoker	1.00	
Severity of disease		
BSA≤10	1.00	-2.20, 2.96
BSA>10	2.55	
Face and neck involvement		
Non-severe	1.00	-1.36, 3.83
Severe	2.28	
Nail involvement		
Yes	1.28	1.14, 1.45-
No	1.00	
Joint disease		
Yes	1.42	1.22, 1.65-
No	1.00	
Systemic therapy		
Yes	1.36	1.19, 1.56-
No	1.00	
Phototherapy		
Yes	1.34	0.99, 1.81-
No	1.00	

BSA: body surface area; 95%CI: 95% confidence interval

Table 3. Multivariate logistic regression analysis to identify predictors of impaired sexual function.

Factors	Adjusted odds ratio (95% confidence interval)
Age	0.968 (0.962, 0.974)
Male gender	1.357 (1.159, 1.588)
Married	2.539 (2.058, 3.132)
Malay and other Bumiputera groups	0.773 (0.664, 0.901)
Nail involvement	1.215 (1.034, 1.428)
Face and neck involvement	2.149 (1.173, 3.939)
Severe disease	2.308 (1.973, 2.700)

Stepwise forward method was applied using Hosmer-Lemeshow test for goodness of fit

Ethnic differences in terms of sexual difficulties may be related to differences in sexual behavior as well as cultural and religious beliefs of each ethnic group in our population. Among older married adults in Malaysia, those of Indian and Malay ethnicity were more likely to be sexually active compared to those of Chinese ethnicity (Momtaz et al., 2014), and these differences were attributed to cultural and religious attitudes towards sex. More conservative religious beliefs among Muslim Malays may possibly influence discussion regarding sexual difficulties among members of the Malay community in our study population hence underreporting may occur due to perceived social, cultural and religious restraints.

Our findings regarding the association between impaired sexual function and severity of psoriasis were consistent with previously published data (Sampogna et al., 2007) However, Sampogna et al. found that genital involvement rather than facial involvement was associated with sexual difficulties using the DLQI questionnaire (Sampogna et al., 2007). Another study also did not include the face and neck among the areas of sexual interest as defined by their analysis (Molina-Leyva et al., 2015). We were not able to investigate the impact of genital psoriasis due to the nature of data collection in the registry. The association between nail psoriasis and sexual function has not been reported in previous studies. We postulate that the difference between our findings and other studies may be related to the cultural environment and definition of beauty in our study population.

Our limitations included the nature of data collection using a registry, use of a self-reported dermatology-specific measure of quality of life to investigate sexual difficulties rather than the use of more specific scales and investigator-administered questionnaires which may be able to probe further whether respondents truly do not experience sexual difficulties or whether they are uncomfortable indicating such issues on self-reported questionnaires. Future studies using more specific measures of sexual health such as the Massachusetts General Hospital-Sexual Functioning Questionnaire and the Female Sexual Function Index may be invaluable to further define the magnitude of this issue and to explore the various aspects of sexual dysfunction. We were only able to determine associations between the various factors and sexual health, not causation in this study. We were unable to evaluate differences between heterosexual or homosexual respondents due to the nature of data collection and this may be an area of interest for potential research. Possible associations with psychological morbidity, specific sites of involvement, self-perceived body image and quality of relationships with partners and spouses may be explored in future studies.

Conclusion

Younger age, male gender, married status, ethnicities other than Malay or Bumiputera, nail psoriasis, face and neck involvement and severe disease were significant predictors of impaired sexual function reported among people living with psoriasis in Malaysia. Hence, the optimal treatment of psoriasis as well as adopting a holistic approach to patient care may improve the lives of people living with psoriasis and their families. Exploring sexual issues in a sensitive and culturally appropriate manner during clinical encounters may also lead to improved care and targeted interventions especially when interacting with patients from social and religious backgrounds who may be less open to discussing sexual difficulties with healthcare providers.

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Disclosure statement

The authors have no conflicts of interest to declare.

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