Psychological Impact, Self-perception and the Contributing Factors in Patients with Androgenetic Alopecia

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Background: Androgenetic alopecia (AGA) is a common hair disorder which affects the patients’ psychology and social activities. Despite being the most prevalent alopecia in Malaysia, there are limited studies examining its psychological impact and patient’s perception on AGA. This study assessed these effects and determined their contributing factors in AGA patients.

Methods: A prospective observational study was conducted involving all AGA patients attending dermatology clinics at two tertiary centers. Psychological impact was assessed using Hospital Anxiety and Depression Scale (HADS). Patient’s perception was assessed using Visual Analog Scale (VAS).

Results: Sixty male patients and 41 female patients were recruited. The median age of patients was 29 years. The ethnic composition was Malay (30.7%), Chinese (34.7%) and Indian (34.6%). More females experienced mild AGA-related anxiety and depression compared to males (P<0.001). Young (age<40 years) and single individuals experienced more anxiety and depression than older, married patients (P<0.001). Patients who adopted coping strategies reported more anxiety (P=0.002) and depression (P<0.001) compared to those who were not using any coping strategy. Women were more dissatisfied with their hair condition (VAS score=4 [3]) compared to men (VAS score=5 [3]; P=0.002).

Conclusion: AGA impairs patients’ psychology and affects their self-perception. Age less than 40 years old, female, unmarried, disease duration less than 4 years and adopting coping strategies were significant factors influencing the psychological impact and perception in AGA patients. Hence, early integration of psychological support to treatment of AGA is recommended.

Keywords: Androgenetic alopecia; Anxiety; Hair transplantation

Introduction

Androgenetic alopecia (AGA) is a common hair disorder [1] which usually begins between the ages of 12 to 40 years old [2]. In Asian countries, the prevalence of AGA is higher in males than females. In Korea, the reported prevalence is 14.1% in men and 5.6% in women [3]. In China, it was 21.3% in men and 6% in women [4]. A much higher prevalence of 63% was reported in Singaporean men [5]. In Malaysia, AGA is the most prevalent type of alopecia reported [6,7]. The most common ethnicities affected by this condition here were Malays (42.1%), followed by Indians (26.3%), Chinese (26.3%) and others (5.3%) [1].

Hair plays an important role in determining self-image, identity, social perception and psychosocial functioning [8]. [I. Passchier Ph.D., July 1988 #38] Due to this reason, even a clinically imperceptible hair loss had been reported to be associated with reduced quality of life (QoL) [9]. Studies had highlighted several AGA-related negative psychological impacts such as anxiety, depression, low self-esteem and feeling unattractive [10,11]. These negative feelings may also lead to marital or sexual problems [12].

AGA not only causes psychological disturbances due to the nature of the disease, but also by its limited pharmacological therapies to prevent further progression of hair loss or in a minority to stimulate partial regrowth [13]. Some patients are managing their condition with camouflaging techniques [14,15] and studies have shown that poor coping strategies for AGA may contribute to more negative perception of hair loss and self-image [16], thus adding onto the overall damaging psychological impact. Consequently, understanding the psychosocial aspect and perception of patients with AGA has become a matter of great concern. In Malaysia particularly, there is paucity in research exploring the patient’s belief on AGA and how it relates to their mental health. Hence, the aims of this study were to investigate the psychological impact of AGA to the patients and their perception of their hair condition. Factors which could influence these effects were also investigated.
Materials and Methods

Patients and study design

We conducted a cross-sectional, observational study at the Dermatology Outpatient Clinics in The National University of Malaysia Medical Centre and Kuala Lumpur General Hospital over 1 year starting June 2015. The study was approved by The National University of Malaysia Research Ethic Committee (UKM 1.5.3.5/244/FF-2014-358) and the Medical Research Ethics Committee, Ministry of Health (NMRR-16-358-29565). All participants provided their written informed consent. We included patients aged 16 years and above with clinical diagnosis of AGA of all severities, who could understand and complete the questionnaires in English or Malay version. We excluded patients who were on medications that could cause alopecia, those with other types of alopecia and those with medical conditions which could lead to alopecia. Patients were asked to answer the Hospital Anxiety and Depression Scale (HADS) questionnaire and to rate subjectively the severity of their hair condition using the Visual Analog Scale (VAS).

Assessment

Hospital anxiety and depression scale (HADS): This is a validated questionnaire consisted of 14 items specifically designed for screening anxiety and depressive symptoms. It has two subscales: seven items reflecting anxiety (HADS-A) and seven items reflecting depression (HADS-D). The anxiety and depression subscales are scored from 0 to 3 (four-point Likert scales), giving maximum scores of 21 for anxiety and depression respectively. Score 7 or below is considered "normal/no problem" , scores 8-10 indicates "mild"; 11-14 indicates "moderate" and 15-21 indicates "severe". A score of 11 or higher indicates probable presence of the mood disorder namely anxiety or depression [17].

Visual analogue scale (VAS): A score ranging from 0 (completely dissatisfied) to 10 (completely satisfied) was used to gauge the patient's perception on the severity of their hair condition. A validated Malay version of the questionnaire was utilized [16,17].

Statistical analyses

Data were analyzed using Statistical Package for the Social Sciences (SPSS) software (version 22 for Windows; IBM–SPSS, Chicago, IL, USA). The qualitative data were presented in the forms of frequencies and percentages. Median (interquartile range [IQR]) were used for quantitative data. Kruskal Wallis test was used to compare HADS-A, HADS-D and VAS scores in different age groups, ethnicities, education levels, income and disease severity. Mann-Whitney U test was used to compare HADS-A, HADS-D, and VAS in gender, marital status and disease duration. Spearman rank correlation test (non-parametric) was used to establish the correlation between VAS and HADS scores. P values were considered significant when less than 0.05.

Results

Demographic characteristics

A total of 101 patients were recruited; 59.4 % were males and 40.6% females. The median (IQR) age was 29 (16) years. The ethnic compositions of these patients were Malay (30.7%), Chinese (34.7%), and Indian (34.6%). More than half of patients were single and received tertiary education and 30.7% were professionals. There were 36.6% of female patients had mild disease, 48.8% had moderate disease and 14.6% patients had severe disease. Among male patients, 18.3% had mild AGA, 36.7% had moderate disease and 45% with severe AGA. The median (IQR) duration of disease was 3 years. There were 57.4% patients had family history of AGA. The demographic characteristics of the patients were presented in Table 1.
## Table 1: Patient demographic characteristics.

Most patients adopted coping strategies; majority being females. There were 45.5% patients changed their hairstyles, 30.9% wore head scarves, 10.9% wore wigs, 7.3% patients wore caps to conceal localized patches of alopecia and 5.5% patients had hair transplantation (Table 1).

The median (IQR) HADS-A score for total sample size was 7 (5). This reflects no anxiety amongst AGA patients. Nevertheless, when comparing the median HADS-A according to gender, females had a significantly higher score (median [IQR] 8 (6) than males (median (IQR) 5 (5.75)) (P<0.001). The overall median (IQR) HADS-D score was 6 (7) but again, females experienced depression significantly with HADS-D score (median (IQR) 8 (8.5)) compared to males with AGA (median (IQR) 5 (7)). The median HADS scores were significantly higher in patients who had AGA for less than 4 years compared to those where the disease was presented for 4 years and above. There was no significant difference in HADS-A and HADS-D among male patients throughout the disease severity spectrum. However, anxiety and depressive symptoms were reported in females from all disease severity. Patients who use coping strategies for AGA reported more anxiety (P=0.002) and depression (P<0.001) with their hair condition compared to those who did not adopt any coping strategy. There were no significant differences in median HADS-A and HADS-D scores among different education levels, occupations, ethnicities and monthly income. Individuals less than 40 years (P<0.001) and single (P<0.001) had significantly more anxiety and depression than older, married patients (Table 2 and Table 3).

<table>
<thead>
<tr>
<th>Variables</th>
<th>HADS-A Median (p25-p75)</th>
<th>Comparison of patient groups for HADS-A scores</th>
<th>P value (b)</th>
<th>HADS-D Median (p25-p75)</th>
<th>Comparison of patient groups for HADS-D scores</th>
<th>P value (b)</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
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<tr>
<td>1. &lt;20</td>
<td>8 (5.75-14)</td>
<td>1 vs. 2</td>
<td>0.759</td>
<td>8 (6.5-17)</td>
<td>1 vs. 2</td>
<td>0.386</td>
</tr>
<tr>
<td>2. 20-39</td>
<td>8 (6-10)</td>
<td>1 vs. 3</td>
<td>0.007</td>
<td>7.5 (5-10.75)</td>
<td>1 vs. 3</td>
<td>0.011</td>
</tr>
<tr>
<td>3. 40-59</td>
<td>5 (2-6)</td>
<td>1 vs. 4</td>
<td>0.005</td>
<td>2 (1-5)</td>
<td>1 vs. 4</td>
<td>0.017</td>
</tr>
<tr>
<td>4. &gt;60</td>
<td>1 (0-6)</td>
<td>2 vs. 3</td>
<td>&lt;0.001</td>
<td>1.5 (0-6)</td>
<td>2 vs. 3</td>
<td>&lt;0.001</td>
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<td></td>
<td></td>
<td>2 vs. 4</td>
<td>&lt;0.001</td>
<td></td>
<td>2 vs. 4</td>
<td>0.001</td>
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<tr>
<td></td>
<td></td>
<td>3 vs. 4</td>
<td>0.115</td>
<td></td>
<td>3 vs. 4</td>
<td>0.488</td>
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<tr>
<td>Disease Severity</td>
<td></td>
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<tr>
<td>Ludwig scale</td>
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<td></td>
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<tr>
<td>Mild</td>
<td>7 (5-8)</td>
<td>Mild-moderate</td>
<td>0.068</td>
<td>4 (3-6)</td>
<td>Mild-moderate</td>
<td>0.001</td>
</tr>
<tr>
<td>Moderate</td>
<td>9 (6-19.75)</td>
<td>Mild-severe</td>
<td>0.002</td>
<td>9 (6.25-12)</td>
<td>Mild-severe</td>
<td>0.001</td>
</tr>
</tbody>
</table>
Variables | HADS-A Median (p25-p75) | HADS-D Median (p25-p75) | VAS Median (p25-p75)
---|---|---|---
Disease Duration | | | |
<4 years | 8 (5-10) | 8 (5-12) | 4 (2-5)
≥ 4 years | 5 (2-8) | 3 (1-7.25) | 6 (4-7.25)
P value | <0.001 | <0.001 | <0.001
Ethnicity | | | |
Malay | 7 (5-9) | 6 (3-8) | 5 (4-7)
Chinese | 8 (4-10) | 6 (3-10) | 4 (3-5)
Indian | 6 (2.75-10) | 6.5 (1-11.25) | 5 (3-7)
P value | 0.755 | 0.610 | 0.089
Education level | | | |
Primary | 0 (0-5) | 1 (0-4.5) | 7 (5-8.5)
Secondary | 7 (4-9) | 5 (2-8) | 5 (3.5-6)
Tertiary | 8 (5-10) | 7 (3-10) | 4 (3-6)
P value | 0.05 | 0.082 | 0.004
Marital status | | | |

Table 2: HADS-A and HADS-D scores according to age and disease severity (Abbreviations: HADS-A, Hospital anxiety and depression scale-anxiety subscale; HADS-D, Hospital anxiety and depression scale-depression subscale; vs versus; (1): <20; (2): 20-39; (3): 40-59; (4):>60 (a) overall P value calculated using Kruskal Wallis test, (b) data compared using Mann-Whitney U test.

The median (IQR) VAS score for total sample size was 4 (3). Females had lower VAS score (4 [3]) than males (5 [3]) (P=0.002). The median VAS score was significantly lower in patients with AGA for less than 4 years compared to those with disease duration of 4 years or more (P<0.001). With regards to disease severity, there was no significant difference in patients’ perception regarding their hair loss for both males (P=0.057) and females (P=0.555). Consistently, patients who used invasive or non-invasive coping strategy for AGA were found to be more dissatisfied with their hair condition compared to those who did not adopt any coping strategy (P=0.021). There was significant difference in median VAS score among different education levels whereby patients who only received primary education had higher VAS score (7 (3.5)) compared to those with secondary (5 (2.5)) and tertiary education levels (4 (3)) (P=0.004). Significant differences in median (IQR) VAS scores were also observed across various occupations where managers (7(7)), pensioners and unemployed individuals (7 (3)) had the highest VAS scores, followed by technical (5 (4)), professionals (4 (3)), administrative (4 (3)), sales and customer service (4 (4.5)) and students (3.5 (1.5)). P=0.009. No significant difference in VAS score was reported across different ethnicities, P=0.089, and monthly income P=0.061. Previous studies observed, age less than 40 years (P<0.001) and single (P<0.001). AGA patients were more dissatisfied with their hair condition compared to older, married patients (Table 3 and Table 4).
<table>
<thead>
<tr>
<th>Variables</th>
<th>VAS Median (p25-p75)</th>
<th>P value (a)</th>
<th>Comparison of patient groups</th>
<th>P value (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. &lt;20</td>
<td>3 (1.25-4)</td>
<td>1 vs. 2</td>
<td>0.227</td>
<td></td>
</tr>
<tr>
<td>2. 20-39</td>
<td>4 (2.25-5)</td>
<td>&lt;0.001</td>
<td>1 vs. 3</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>3. 40-59</td>
<td>6 (5-7)</td>
<td>1 vs. 4</td>
<td>0.001</td>
<td></td>
</tr>
<tr>
<td>4. &gt;60</td>
<td>7.5 (5.75-9.25)</td>
<td>2 vs. 3</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td></td>
<td>2 vs. 4</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td></td>
<td>3 vs. 4</td>
<td>0.071</td>
<td></td>
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</table>

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<thead>
<tr>
<th>Disease Severity</th>
<th>Ludwig scale</th>
<th>Norwood-Hamilton scale</th>
</tr>
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<tbody>
<tr>
<td>Mild</td>
<td>5 (3-7)</td>
<td>Mild 5 (4-7)</td>
</tr>
<tr>
<td>Moderate</td>
<td>4 (3-5)</td>
<td>Moderate 4 (3-7.25)</td>
</tr>
<tr>
<td>Severe</td>
<td>0.5 (0-1.25)</td>
<td>Severe 0.5 (0-1.25)</td>
</tr>
</tbody>
</table>

Table 3: Correlation between single variable to HADS-A, HADS-D and VAS (Abbreviations: HAD-A: Hospital Anxiety and Depression Scale-Anxiety subscale; HADS-D: Hospital Anxiety and Depression Scale-Depression subscale; VAS: Visual Analog Scale (a) Data presented are the median and 25th-75th percentile.)
Similar to the trend seen in other studies [10,28], our study shows female patients with more severe AGA felt more depressed and anxious compared to the males. This is because women regard hair as an indicator of personality, femininity, attractiveness and sexuality [10,23]. This result was not observed in male patients presented with varying degrees of AGA severity. Our finding is in contrast to Yu et al. [20] and Kranz et al. [29] who found young men with more severe AGA reported higher level of psychological distress, anxiety, and depression.

In patients with alopecia for less than 4 years, AGA caused the patients to be more depressed, anxious and dissatisfied with their hair condition compared to those with longer disease duration. These findings suggest that patients experience non-acceptance, depression and anxiety at the beginning of the disease but these feelings become attenuated over time as patients adapt to the condition by developing the necessary positive coping skills. This also highlights that it takes a long time for patients to accept the nature of this condition which is almost similar to coping with chronic medical conditions [18]. Our findings are in contrast with studies by Cash et al. [31] and Han et al. [22] who reported psychological aspect was more severely afflicted in patients who had a longer duration of AGA. However, there were also studies showing no significant association between disease duration and psychological impact [20,23,28].

Although there was no significant difference in HADS scores in different education levels, occupations and monthly income, we observed that those who received secondary and tertiary education were remarkably more dissatisfied with their hair condition. This could be due to their increased awareness and self-consciousness about image and the need for high degree of social interaction in these group of patients [30,33]. Interestingly, we found that AGA caused greater dissatisfaction and psychological impairment among patients adopting coping strategies. Patients, who used invasive coping method for instance hair transplantation, were completely dissatisfied with their hair condition and experienced mild anxiety and severe depression than those who used non-invasive coping methods. Similar results were also reported by Cash et al. [10] and Zhuang et al. [28] who discovered patients who were actively seeking dermatologic treatment for AGA reported higher level of psychological distress, anxiety, and depression.

Our study also found that younger patients had negative perception of their hair condition while other study did not find any difference [28]. One possible explanation for our observation is that when patients are psychologically disturbed by their hair condition; this results in an undesirable perception.

Single individuals were found to experience more anxiety and depression and were more dissatisfied with their hair condition compared to those who were married. This finding concurs with other studies [30,31] and may be explained by the fact that physical attractiveness is known to affect dating [32]. Both men and women believe that hair loss will erode their chances in romance [33] because baldness is often perceived as an unattractive quality. This is also supported by the findings from Lee et al. [32], where over 90% of women and non-balding men responded that balding men had a disadvantage in dating or marriage.
Conclusion

AGA leads to anxiety and depression especially in women. Patient’s perception on their disease severity determines the severity of the psychological impact. Young age less than 40 years old, single, females with shorter disease durations are the ones most adversely affected by the disease. Adopting coping methods without acceptance of the disease leads to adverse psychological impact. Therefore, early psychological support to facilitate acceptance of disease is recommended in AGA management.

Acknowledgement

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References

6. Dermatological Society of Malaysia [WWW document]