Patient perspectives of the social, emotional and functional impact of alopecia areata: a systematic literature review

*American Journal of Clinical Dermatology*

A. Mostaghimi\(^1\)*, L. Napatalung\(^2\), V. Sikirica\(^3\), R. Winnette\(^2\), J. Xenakis\(^2\), S.H. Zwillich\(^4\), B. Gorsh\(^3\)

\(^1\)Brigham and Women’s Hospital, Harvard Medical School, Boston, MA, USA; \(^2\)Pfizer, New York, NY, USA; \(^3\)Pfizer, Collegeville, PA, USA; \(^4\)Pfizer, Groton, CT, USA

*Corresponding author: Arash Mostaghimi, Email: amostaghimi@bwh.harvard.edu*
### Table S1: Embase<sup>®</sup> search strategy

**Embase <1974 to 2018 Week 49>**

Run: December 03, 2018

| Step | Search string                                                                 | Hits  |
|------|-----------------------------------------------------------------------------|-------|
| 1    | exp ALOPECIA AREATA/                                                        | 5375  |
| 2    | alopecia areata.mp.                                                         | 5838  |
| 3    | (alopecia adj2 (totalis or universalis)).tw.                               | 759   |
| 4    | or/1-3                                                                      | 6118  |
| 5    | outcome assessment/                                                        | 453,254 |
| 6    | "Quality of Life"/                                                         | 406,955 |
| 7    | (quality of life or QoL or QL or HRQoL or HRQL or life quality or health status or health state or well-being).mp. | 698,359 |
| 8    | or/5-7                                                                      | 1,105,251 |
| 9    | exp Questionnaires/                                                        | 617,541 |
| 10   | (questionnaire* or interview* or self-report* or measure* or instrument* or scale* or tool* or construct* or report* or survey* or focus group* or daily or diary or diaries).mp. | 12,335,990 |
| 11   | 9 or 10                                                                     | 12,335,990 |
| 12   | 8 and 11                                                                    | 675,664 |
| 13   | ((patient* or parent* or proxy or proxies or caregiver*) adj3 report* or relate* or perspective* or experience* or satisfaction)).mp. | 704,176 |
| 14   | (psycho* or psychiatric* or suicid* or anxi* or depress* or bully* or bulli* or social function* or emotion* or productivity or absent* or absence* or missed school or missed work).tw. | 2,452,786 |
| 15   | (Beck Depression Inventory or BDI or Beck Anxiety Inventory or BAI or Short Form Health Survey 36 or SF-36 or SF-6D or Dermatology Life Quality Index or DLQI or Child Depression Inventory or CDI or Hamilton Anxiety Rating Scale or HAM-A or Hamilton Depression Rating Scale or HAM-D or Minnesota Multiphasic Personality Inventory or MMPI or Hospital Anxiety Depression Scale or HADS or General Health Questionnaire 28 or GHQ-28 or Child Health Utility 9D or CHU 9D or Health Utilities Index or HUI2).tw. | 89,510 |
| 16   | (function* adj2 (stat* or capacit*)).tw.                                    | 94,746 |
| 17   | (Mental adj2 (ill* or health or disease* or condition*)).tw.                | 179,665 |
| 18   | or/12-17                                                                    | 3,584,001 |
| 19   | exp economics/ or exp health-economics/ or exp economic-evaluation/ or exp health-care-cost/ or exp | 916,018 |
| Step | Search string | Hits |
|------|---------------|------|
| 20   | exp Economics/ or exp Health Services Research/ or exp Models, Economic/ or exp Cost-Benefit Analysis/ or exp Health Care Costs/ or exp Economics, Medical/ or exp Economics, Pharmaceutical/ | 938,640 |
| 21   | (finance$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic$).ti,ab. | 701,386 |
| 22   | (finance* adj2 (impact or burden)).ti,ab. | 9291 |
| 23   | ((impact or burden) adj2 (work or school or career)).tw. | 3019 |
| 24   | (Health resource utili$ation or healthcare resource utili$ation or HCRU or HRU).tw. | 1098 |
| 25   | (Work adj2 (productivity or loss)).tw. | 5720 |
| 26   | (disability adjusted life year* or DALY* or quality adjusted life year* or QALY*s).tw. (21672) | 22,094 |
| 27   | (expenditure$ not energy).ti,ab. | 35,452 |
| 28   | (value adj2 money).ti,ab. | 2167 |
| 29   | budget$.ti,ab. | 34,017 |
| 30   | pay$r.ti,ab. | 36 |
| 31   | or/19-30 | 1,367,949 |
| 32   | (metabolic adj2 cost).ti,ab. | 1477 |
| 33   | ((energy or oxygen) adj2 cost).ti,ab. | 4616 |
| 34   | ((energy or oxygen) adj2 expenditure).ti,ab. | 29,131 |
| 35   | or/32-34 | 34,102 |
| 36   | 31 not 35 | 1,360,736 |
| 37   | 18 or 36 | 4,719,705 |
| 38   | 4 and 37 | 1162 |
| 39   | (animal$ not human$).sh,hw. | 1,360,626 |
| 40   | 38 not 39 | 1177 |
| 41   | limit 40 to english language | 1036 |
| 42   | limit 41 to yr="2008 -Current" | 766 |
| 43   | conference abstract.pt. | 3,217,669 |
| 44   | 42 not 43 | 532 |
| 45   | remove duplicates from 44 | 513 |
### Table S2 Medline® search strategy

MEDLINE and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily
<1946 to November 30, 2018>
Run: December 03, 2018

| Step | Search string                                                                 | Hits     |
|------|-------------------------------------------------------------------------------|----------|
| 1    | exp ALOPECIA AREATA/                                                          | 2962     |
| 2    | alopecia areata.mp.                                                            | 4038     |
| 3    | (alopecia adj2 (totalis or universalis)).tw.                                  | 576      |
| 4    | or/1-3                                                                        | 4271     |
| 5    | outcome assessment/                                                           | 0        |
| 6    | "Quality of Life"/                                                            | 169,057  |
| 7    | (quality of life or QoL or QL or HRQoL or HRQL or life quality or health status or health state or well-being).mp. | 459,092  |
| 8    | or/5-7                                                                        | 459,092  |
| 9    | exp Questionnaires/                                                           | 927,078  |
| 10   | (questionnaire* or interview* or self-report* or measure* or instrument* or scale* or tool* or construct* or report* or survey* or focus group* or daily or diary or diaries).mp. | 9,790,112|
| 11   | 9 or 10                                                                       | 9,987,590|
| 12   | 8 and 11                                                                      | 320,449  |
| 13   | ((patient* or parent* or proxy or proxies or caregiver*) adj3 (report* or relate* or perspective* or experience* or satisfaction)).mp. | 460,891  |
| 14   | (psycho* or psychiatric* or suicid* or anxi* or depress* or bully* or bulli* or social function* or emotion* or productivity or absent* or absence* or missed school or missed work).tw. | 1,929,898|
| 15   | (Beck Depression Inventory or BDI or Beck Anxiety Inventory or BAI or Short Form Health Survey 36 or SF-36 or SF-6D or Dermatology Life Quality Index or DLQI or Child Depression Inventory or CDI or Hamilton Anxiety Rating Scale or HAM-A or Hamilton Depression Rating Scale or HAM-D or Minnesota Multiphasic Personality Inventory or MMPI or Hospital Anxiety Depression Scale or HADS or General Health Questionnaire 28 or GHQ-28 or Child Health Utility 9D or CHU 9D or Health Utilities Index or HUI2).tw. | 56,083   |
| 16   | (function* adj2 (stat* or capacit*)).tw.                                      | 69,237   |
| 17   | (Mental adj2 (ill* or health or disease* or condition*)).tw.                  | 143,589  |
| 18   | or/12-17                                                                      | 2,603,306|
|   | Query                                                                 | Documents |
|---|-----------------------------------------------------------------------|-----------|
|19 | exp economics/ or exp health-economics/ or exp economic-evaluation/ or exp health-care-cost/ or exp pharmacoconomics/ | 568,782   |
|20 | exp Economics/ or exp Health Services Research/ or exp Models, Economic/ or exp Cost-Benefit Analysis/ or exp Health Care Costs/ or exp Economics, Medical/ or exp Economics, Pharmaceutical/ | 693,793   |
|21 | (finance$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic$).ti,ab. | 529,590   |
|22 | (finance* adj2 (impact or burden)).ti,ab.                            | 5851      |
|23 | ((impact or burden) adj2 (work or school or career)).tw.             | 2090      |
|24 | (Health resource utilization or healthcare resource utilization or HCRU or HRU).tw. | 355       |
|25 | (Work adj2 (productivity or loss)).tw.                              | 3122      |
|26 | (disability adjusted life year* or DALY* or quality adjusted life year* or QALY*s).tw. (21672) | 14,290    |
|27 | (expenditure$ not energy).ti,ab.                                    | 26,557    |
|28 | (value adj2 money).ti,ab.                                           | 1529      |
|29 | budget$.ti,ab.                                                      | 26,453    |
|30 | pay$.ti,ab.                                                         | 31        |
|31 | or/19-30                                                            | 1,088,934 |
|32 | (metabolic adj2 cost).ti,ab.                                        | 1387      |
|33 | ((energy or oxygen) adj2 cost).ti,ab.                               | 4475      |
|34 | ((energy or oxygen) adj2 expenditure).ti,ab.                        | 23,114    |
|35 | or/32-34                                                            | 27,961    |
|36 | 31 not 35                                                            | 1,082,086 |
|37 | 18 or 36                                                            | 3,517,883 |
|38 | 4 and 37                                                            | 586       |
|39 | (animals not (humans and animals)).sh.                              | 1,192,722 |
|39 | 38 not 39                                                           | 582       |
|40 | limit 39 to english language                                        | 416       |
|41 | limit 40 to yr="2008 -Current"                                      | 244       |
### Table S3: Cochrane Central Register of Controlled Trials search strategy

EBM Reviews – Cochrane Central Register of Controlled Trials <October 2018>, EBM Reviews – Cochrane Database of Systematic Reviews <2005 to November 30, 2018>, EBM Reviews – Health Technology Assessment <4th Quarter 2016>, EBM Reviews – NHS Economic Evaluation Database <1st Quarter 2016>

Run: December 3, 2018

| Step  | Search string                                                                 | Hits  |
|-------|------------------------------------------------------------------------------|-------|
| 1     | exp ALOPECIA AREATA/                                                          | 202   |
| 2     | alopecia areata.mp.                                                           | 366   |
| 3     | (alopecia adj2 (totalis or universalis)).tw.                                 | 39    |
| 4     | or/1-3                                                                       | 373   |
| 5     | outcome assessment/                                                          | 12    |
| 6     | "Quality of Life"/                                                           | 21,624|
| 7     | (quality of life or QoL or QL or HRQoL or HRQL or life quality or health status or health state or well-being).mp. | 227,263|
| 8     | or/5-7                                                                       | 227,274|
| 9     | exp Questionnaires/                                                          | 1923  |
| 10    | (questionnaire* or interview* or self-report* or measure* or instrument* or scale* or tool* or construct* or report* or survey* or focus group* or daily or diary or diaries).mp. | 616,837|
| 11    | 9 or 10                                                                      | 616,845|
| 12    | 8 and 11                                                                     | 156,415|
| 13    | ((patient* or parent* or proxy or proxies or caregiver*) adj3 (report* or relate* or perspective* or experience* or satisfaction)).mp. | 89,244|
| 14    | (psycho* or psychiatric* or suicid* or anxi* or depress* or bully* or bulli* or social function* or emotion* or productivity or absent* or absence* or missed school or missed work).tw. | 155,012|
| 15    | (Beck Depression Inventory or BDI or Beck Anxiety Inventory or BAI or Short Form Health Survey 36 or SF-36 or SF-6D or Dermatology Life Quality Index or DLQI or Child Depression Inventory or CDI or Hamilton Anxiety Rating Scale or HAM-A or Hamilton Depression Rating Scale or HAM-D or Minnesota Multiphasic Personality Inventory or MMPI or Hospital Anxiety Depression Scale or HADS or General Health Questionnaire 28 or GHQ-28 or Child Health Utility 9D or CHU 9D or Health Utilities Index or HUI2).tw. | 17,755|
| 16    | (function* adj2 (stat* or capacit*)).tw.                                      | 11,408|
| 17    | (Mental adj2 (ill* or health or disease* or condition*)).tw.                  | 14,070|
| Step | Search string                                                                                                                                                                                                 | Hits   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 18   | or/12-17                                                                                                                                                                                                     | 329,904|
| 19   | exp economics/ or exp health-economics/ or exp economic-evaluation/ or exp health-care-cost/ or exp pharmacoeconomics/                                                                                       | 27,606 |
| 20   | exp Economics/ or exp Health Services Research/ or exp Models, Economic/ or exp Cost-Benefit Analysis/ or exp Health Care Costs/ or exp Economics, Medical/ or exp Economics, Pharmaceutical/                              | 29,415 |
| 21   | (finance$ or cost or costs or costly or costing or price or prices or pricing or pharmacoeconomic$).ti,ab.                                                                                                       | 59,401 |
| 22   | (finance* adj2 (impact or burden)).ti,ab.                                                                                                                                                                    | 461    |
| 23   | ((impact or burden) adj2 (work or school or career)).tw.                                                                                                                                                     | 607    |
| 24   | (Health resource utili$ation or healthcare resource utili$ation or HCRU or HRU).tw.                                                                                                                          | 73     |
| 25   | (Work adj2 (productivity or loss)).tw.                                                                                                                                                                       | 1034   |
| 26   | (disability adjusted life year* or DALY* or quality adjusted life year* or QALY*s).tw. (21672)                                                                                                                                 | 8358   |
| 27   | (expenditure$ not energy).ti,ab.                                                                                                                                                                             | 1362   |
| 28   | (value adj2 money).ti,ab.                                                                                                                                                                                   | 186    |
| 29   | budget$.ti,ab.                                                                                                                                                                                                | 770    |
| 30   | pay$r.ti,ab.                                                                                                                                                                                                 | 0      |
| 31   | or/19-30                                                                                                                                                                                                     | 72,113 |
| 32   | (metabolic adj2 cost).ti,ab.                                                                                                                                                                                | 111    |
| 33   | ((energy or oxygen) adj2 cost).ti,ab.                                                                                                                                                                       | 403    |
| 34   | ((energy or oxygen) adj2 expenditure).ti,ab.                                                                                                                                                               | 3120   |
| 35   | or/32-34                                                                                                                                                                                                     | 3510   |
| 36   | 31 not 35                                                                                                                                                                                                    | 71,525 |
| 37   | 18 or 36                                                                                                                                                                                                     | 370,250|
| 38   | 4 and 37                                                                                                                                                                                                     | 73     |
| 39   | limit 38 to humans                                                                                                                                                                                             | 73     |
| 40   | limit 39 to english language                                                                                                                                                                                 | 46     |
| 41   | limit 40 to yr="2008-Current"                                                                                                                                                                              | 31     |
### Table S4 PubMed advanced search

January 1, 2016–November 22, 2018

| Step | Search string                                                                 | Hits  |
|------|-------------------------------------------------------------------------------|-------|
| 1    | alopecia areata[MeSH Terms]                                                   | 2949  |
| 2    | alopecia areata[Title/Abstract]                                               | 3461  |
| 3    | (#1 or #2)                                                                    | 4009  |
| 4    | (quality of life[Text Word] OR QoL[Text Word] OR HRQoL[Text Word])            | 285,944|
| 5    | (((quality of life[Text Word] OR QoL[Text Word] OR HRQoL[Text Word]))) AND #3 | 96    |
| 6    | (economic[Title/Abstract] OR cost[Title/Abstract] OR burden[Title/Abstract])  | 659,763|
| 7    | (#6 and #3)                                                                   | 41    |
| 8    | (#5 or #7)                                                                    | 132   |
| 9    | #5 or #7 Filters: Publication date from 2016/01/01 to 2018/11/22               | 56    |
| 10   | #5 or #7 Filters: Publication date from 2016/01/01 to 2018/11/22; English       | 55    |
| 11   | #5 or #7 Filters: Publication date from 2016/01/01 to 2018/11/22; Humans; English| 29    |
Table S5 Dermatology congress abstracts searched
January 1, 2017 to December 3, 2018

|                          |                                           |
|--------------------------|-------------------------------------------|
| American Academy of Dermatology |                                           |
| European Academy of Dermatology and Venereology |                                           |
| European Dermatology Congress |                                           |

Table S6 Key study characteristics

| Characteristics                  | Category                          | Studies, n (%) |
|----------------------------------|-----------------------------------|----------------|
| Total                            |                                   | 37 (100)       |
| Publication type, n (%)          | Manuscript                        | 37 (100)       |
|                                  | Congress abstract                 | 0              |
| Study design, n (%)              | Observational                     | 37 (100)       |
| Continent/Region, n (%)          | Middle East and North Africa      | 14 (38)        |
|                                  | Europe                            | 13 (35)        |
|                                  | Asia                              | 5 (14)         |
|                                  | North America                     | 3 (8)          |
|                                  | South America                     | 2 (5)          |
| Risk of bias, n (%)              | Low                               | 23 (62)        |
|                                  | Medium                            | 14 (38)        |
|                                  | High                              | 0              |
**Fig. S1** Clinical outcome assessment tools across the publications

BIPQ, Brief Illness Perception Questionnaire; DLQI, Dermatology Life Quality Index; EQ-i, Emotional Quotient Inventory; GHQ-12, General Health Questionnaire, 12-item; MBSRQ, Multidimensional Body-Self Relations Questionnaire; SCL-90, Symptom Checklist 90; SF-36, Short Form 36; SPIN, Social Phobia Inventory; TAS-20/26, Toronto Alexithymia Scale, 20-item or 26-item; TCI, Temperament and Character Inventory.