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LETTER TO THE EDITOR

The lifestyle of psoriasis patients and their motivation to change

Dear Editor,

Psoriasis is associated with a number of comorbidities of which some can be positively influenced by lifestyle changes.^{1–3} It is also known that dietary and relaxation interventions could be promising in improving psoriasis severity and the quality of life of patients with psoriasis.⁴ Knowledge on the motivation of psoriasis patients to change lifestyle and on differences in lifestyles of motivated versus unmotivated patients is essential for the development of targeted lifestyle interventions. However, evidence on this topic is scarce. Therefore, we (1) assessed the motivation of psoriasis patients to change their lifestyle and which lifestyle domains they are most willing to adapt, (2) assessed their current lifestyle in six lifestyle domains (physical activity, smoking, alcohol, diet, stress and sleep) and (3) compared the lifestyle of patients who are motivated with patients who are unmotivated or uncertain to change their lifestyle.

A web-based survey among psoriasis patients aged ≥ 16 years was conducted, based on a survey used for the BENEFIT for all lifestyle program,⁵ and adapted with specific psoriasis-related questions. Respondents were categorized in patients that were (1) motivated, (2) possibly motivated and (3) unmotivated/uncertain about their motivation. The first two groups were asked about their preferred domains to change lifestyle; all patients were asked about their current lifestyle.

Of 448 included patients, most were motivated (48.5%) or possibly motivated (36.8%) to change their lifestyle, whereas 5.1% of patients was unmotivated and 9.6% was uncertain. Motivated and possibly motivated patients were most willing to change physical activity (46.9%) and dietary habits (40.0%) (Table 1). Only one-third of 308 respondents answering questions on current lifestyle (Table 2) complied to the recommended Dutch physical activity (33.8%) and dietary guidelines (vegetables intake 28.2% and fruits intake 29.5%).^{6,7} Furthermore, 17.2%

were smokers and 74.4% drank alcohol, while a small percentage of those patients were excessive (9.2%) or heavy alcohol drinkers (7.0%) according to Dutch criteria for these items.⁸ Unmotivated patients were older ($p = 0.005$), had less psoriasis in visible areas ($p = 0.010$) and used systemic or phototherapy more often than motivated patients ($p = 0.024$). Except for higher smoking rates among unmotivated patients ($p = 0.041$), current lifestyle of both groups did not significantly differ.

The present study identified that most patients were motivated to change their lifestyle, especially in the domains physical activity and diet. However, only one-third of all respondents met the national physical activity guidelines⁶ and the national recommended dietary criteria for vegetables and fruits.⁷ Specifically regarding physical activity, the proportion of respondents meeting the guideline was lower than in the general Dutch population (33.8% resp. 45.8%).⁹

Unmotivated patients used systemic treatments more often than motivated patients. Probably partially due to these systemic treatments, they had less psoriasis in visible areas and showed a trend of less severe psoriasis ($p = 0.054$) compared to the motivated group. One might hypothesize that the use of systemic treatments and consequently improvement of visible psoriasis does not contribute to the attitude that a change in lifestyle can improve psoriasis severity. The fact that unmotivated patients reported less frequently to believe that lifestyle influenced the severity of their psoriasis than motivated patients, underscores this hypothesis.

This study is limited by the web-based study design, potentially resulting in a selection bias and overrepresentation of motivated patients.

In conclusion, the majority of patients with psoriasis was motivated to change their lifestyle, with exercise and diet being the most popular lifestyle domain targets. As the current lifestyle in these domains is suboptimal, interventions aiming at incitement of more physical activity and a healthier diet are most likely to succeed.

TABLE 1 Baseline characteristics and thoughts about lifestyle and motivation (*n* = 448).

	Total patients (n = 448)		Motivated (n = 217)		Possibly motivated (n = 165)		Unmotivated/uncertain (n = 66)		P-value (motivated vs. unmotivated/uncertain)
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
Baseline characteristics									
Psoriasis diagnosis by									
General practitioner	94	(21.0)	46	(21.2)	33	(20.0)	15	(22.7)	NS
Dermatologist	337	(75.2)	161	(74.2)	128	(77.6)	48	(72.7)	
Self-diagnosed	17	(3.8)	10	(4.6)	4	(2.4)	3	(4.5)	
Gender									
Male	135	(30.1)	59	(27.2)	53	(32.1)	23	(34.8)	NS
Female	313	(69.9)	158	(72.8)	112	(67.9)	43	(65.2)	
Age, median [IQR]	54.0	[24.6]	53.0	[26.0]	52.0	[23.9]	59.5	[18.1]	0.005
Psoriasis duration									
<1 year	13	(2.9)	9	(4.1)	3	(1.8)	1	(1.5)	NS
≥1 year	435	(97.1)	208	(95.9)	162	(98.2)	65	(98.5)	
Family history of psoriasis (First or second degree)									
Yes	271	(60.5)	135	(62.2)	96	(58.2)	40	(60.6)	NS
No	177	(39.5)	82	(37.8)	69	(41.8)	26	(39.4)	
Psoriasis severity at time of survey ^a									
0, 1, 2 (mild)	274	(61.2)	135	(62.2)	89	(53.9)	50	(75.8)	0.054
3, 4, 5 (severe)	174	(38.8)	82	(37.8)	76	(46.1)	16	(24.2)	
Psoriasis in visible areas									
Yes	382	(85.3)	191	(88.0)	142	(86.1)	49	(74.2)	0.010
No	66	(14.7)	26	(12.0)	23	(13.9)	17	(25.8)	
Psoriatic arthritis ^b	124	(27.7)	59	(27.2)	44	(26.7)	21	(31.8)	NS
Current psoriasis therapy									
No therapy/topical therapy	251	(56.0)	130	(59.9)	92	(55.8)	29	(43.9)	0.024
Photo therapy/systemic (+topical) therapy	197	(44.0)	87	(40.1)	73	(44.2)	37	(56.1)	
Daily life affected by psoriasis									
Yes	261	(58.3)	138	(63.6)	95	(57.6)	28	(42.4)	0.003
No	187	(41.7)	79	(36.4)	70	(42.4)	38	(57.6)	
Thoughts on lifestyle and motivation									
Do you think lifestyle is the cause of your psoriasis?									
Yes or I have a suspicion	63	(14.1)	37	(17.1)	21	(12.7)	5	(7.6)	NS

TABLE 1 (Continued)

	Total patients (<i>n</i> = 448)		Motivated (<i>n</i> = 217)		Possibly motivated (<i>n</i> = 165)		Unmotivated/uncertain (<i>n</i> = 66)		<i>P</i> -value (motivated vs. unmotivated/uncertain)
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	
No or I don't know	385	(85.9)	180	(82.9)	144	(87.3)	61	(92.4)	
Do you think lifestyle influences the severity of your psoriasis?									
Yes or a little	210	(46.9)	116	(53.5)	80	(48.5)	14	(21.2)	<0.001
No or I don't know	238	(53.1)	101	(46.5)	85	(51.5)	52	(78.8)	
Are you motivated to change your lifestyle in one of the lifestyle domains?									
Yes	217	(48.5)	-		-		-		-
Possibly	165	(36.8)							
No	23	(5.1)							
Uncertain	43	(9.6)							
Which parts of your lifestyle would you like to change? ^a (<i>n</i> = 260)									
Physical activity	122	(46.9)	63	(44.1)	59	(50.4)	-		-
Smoking	21	(8.1)	6	(4.2)	15	(12.8)			
Alcohol	17	(6.5)	7	(4.9)	10	(8.5)			
Diet	104	(40.0)	64	(44.8)	40	(34.2)			
Stress	87	(33.5)	52	(36.4)	35	(29.9)			
Sleep	87	(33.5)	53	(37.1)	34	(29.1)			
Don't know (yet)	54	(20.8)	31	(21.7)	23	(19.7)			
Is there a specific reason you do not want to change your lifestyle? (<i>n</i> = 34)									
Yes	-		-		-		26	(76.5)	-
I'm okay with my current lifestyle							9	(34.6)	
I've already changed my lifestyle							5	(19.2)	
Too busy/tired							3	(11.5)	
I've tried before with no success							1	(3.8)	
It's not worth the effort							3	(11.5)	
Other illness							3	(11.5)	
Unclear							1	(3.8)	
I'm too old							1	(3.8)	
No							8	(23.5)	

^aPsoriasis severity was measured by using Part 1B of the self-assessment version of the simplified psoriasis index (saSPI).¹⁰

^bDiagnosis made by a rheumatologist.

^cPatients were able to choose a maximum of two lifestyle domains they are willing to change.

TABLE 2 Current lifestyle ($n = 308$)^a.

	Total patients (<i>n</i> = 308)	Motivated (<i>n</i> = 147)	Possibly motivated (<i>n</i> = 124)	Unmotivated/ uncertain (<i>n</i> = 37)	<i>P</i> -value (motivated vs. unmotivated/ uncertain)
Lifestyle characteristics	No. (%)	No. (%)	No. (%)	No. (%)	
Exercise according to Dutch recommended guidelines ^b					
At least 150 min of moderate to intense physical activity and muscle and bone strengthening exercises two times per week ^b					
Yes	104 (33.8)	58 (39.5)	36 (29.0)	10 (27.0)	NS
No	204 (66.2)	89 (60.5)	88 (71.0)	27 (73.0)	
Smoking					
Do you smoke?					
Yes	53 (17.2)	13 (8.8)	32 (25.8)	8 (21.6)	0.041
Cigarettes/day on an average week, median [IQR]	9.1 [12.7]	10.0 [13.7]	9.6 [10.6]	6.5 [9.7]	
No	255 (82.8)	134 (91.2)	92 (74.2)	29 (78.4)	
Alcohol					
Do you drink alcohol?					
Yes	229 (74.4)	106 (72.1)	100 (80.6)	23 (62.2)	NS
Excessive drinker (>14 (F) or >21 (M) glasses alcohol per week) ^c					
Yes	21 (9.2)	7 (6.6)	13 (13.0)	1 (4.3)	NS
No	208 (90.8)	99 (93.4)	87 (87.0)	22 (95.7)	
Heavy drinker (>4 (F) or >6 (M) glasses alcohol per day) ^d					
Yes	16 (7.0)	3 (2.8)	11 (11.0)	2 (8.7)	NS
No	213 (93.0)	103 (97.2)	89 (89.0)	21 (91.3)	
No	79 (25.6)	41 (27.9)	24 (19.4)	14 (37.8)	
Diet according to Dutch recommended guidelines ^e					
At least 200 g vegetables daily ^e					
Yes	87 (28.2)	55 (41.6)	24 (19.4)	8 (21.6)	NS
No	221 (71.8)	92 (63.2)	100 (80.6)	29 (78.4)	
At least 200 g fruits daily ^e					
Yes	91 (29.5)	52 (35.4)	26 (21.0)	13 (35.1)	NS
No	217 (70.5)	95 (64.6)	98 (79.0)	24 (64.9)	
At least one serving of oily fish weekly ^e					
Yes	152 (49.4)	84 (57.1)	50 (40.3)	18 (48.6)	NS
No	156 (50.6)	63 (42.9)	74 (59.7)	19 (51.4)	
Stress					
Do you experience stress at home?					
Little stress	179 (58.1)	75 (51.0)	81 (65.3)	23 (62.2)	NS
Much stress	129 (41.9)	72 (49.0)	43 (34.7)	14 (37.8)	
Did you experience stress at work? ^f					
Little stress	119 (51.3 ^g)	59 (53.2 ^g)	48 (49.5 ^g)	12 (50.0 ^g)	NS
Much stress	113 (48.7 ^g)	52 (46.8 ^g)	49 (50.5 ^g)	12 (50.0 ^g)	
Sleep					
Hours sleep per day, median [IQR]	7.0 [2.0]	7.0 [2.0]	7.0 [2.0]	7.0 [2.0]	NS
Sleep quality (1–10)	7.0 [2.0]	7.0 [3.0]	7.0 [2.0]	7.0 [3.0]	NS

Abbreviations: F, female; M, male.

^aOnly patients that responded to all lifestyle questions were included in the analyses.^bThe 2017 Dutch Physical Activity Guidelines as advised by The Health Council of the Netherlands recommends at least 150 min of moderate to intense physical activity each week and muscle and bone strengthening exercises at least two times per week for adults.⁶^cAccording to the Trimbos Institute excessive drinking is defined as drinking more than 14 glasses of alcohol per week for women and more than 21 glasses of alcohol per week for men.⁸^dAccording to the Trimbos Institute heavy drinking is defined as drinking more than 4 glasses of alcohol per day for women and more than 6 glasses of alcohol per day for men.⁸^eThe 2015 Dutch dietary guidelines as advised by the Health Council of the Netherlands recommends at least 200 g of vegetables, 200 g of fruit per day and at least one serving of (oily) fish per week.⁷^fPatients who do not work were excluded from this question.^gPercentage of all patients who work.

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FUNDING INFORMATION

None declared.

CONFLICT OF INTEREST STATEMENT

M. Al-Gawahiri carried out clinical trials for Janssen. All funding is not personal but goes to the independent research fund of the Department of Dermatology, Radboud University Medical Centre (Radboudumc), Nijmegen, The Netherlands. J.M.P.A. van den Reek carried out clinical trials for AbbVie, Celgene, Almirall and Janssen and has received speaking fees/attended advisory boards from AbbVie, Janssen, BMS, Almirall, LEO Pharma, Novartis, UCB and Eli Lilly and reimbursement for attending or chairing a symposium from Janssen, Pfizer, Celgene and AbbVie. All funding is not personal but goes to the independent research fund of the Department of Dermatology, Radboud University Medical Centre (Radboudumc), Nijmegen, The Netherlands. M.R. van Acht has no conflicts of interest to declare. A.W.M. Evers received grants from different parties of, for example, the European Research Council, Erasmus, NWO, ReumaNederland, Diabetesfonds, and Nierstichting. Related to this project, she was projectleader of the BENEFIT consortium who developed the original lifestyle questionnaire used in this study and received support of the Netherlands Cardiovascular Research Initiative and the Dutch Heart Foundation, CVON2016-12 BENEFIT. E.M.G.J. de Jong received research grants for the department of dermatology of the Radboud University Medical Center Nijmegen, the Netherlands from AbbVie, BMS, Janssen Pharmaceutica, Leo Pharma, Lilly, Novartis and UCB, the National Psoriasis Foundation USA and The Netherlands and Belgian Organisations for Health Research and Development; has acted as consultant and/or paid speaker for and/or participated in research sponsored by companies that manufacture drugs used for the treatment of psoriasis or eczema including AbbVie, Amgen, Almirall, Boehringer-Ingelheim, Bristol Myers Squibb, Celgene, Galapagos, Janssen Pharmaceutica, Lilly, Novartis, Leo Pharma, Sanofi and UCB. All funding is not personal but goes to the Institution Radboud University Medical Center Nijmegen, the Netherlands. M.M.B. Seyger received grants from/was involved in clinical trials from AbbVie, Amgen, Celgene, Eli Lilly, Janssen, Leo Pharma and Pfizer. She served as a consultant for AbbVie, Eli Lilly, Janssen, Leo Pharma, Novartis, Pfizer and UCB; fees were paid directly to the Department of Dermatology, Radboud

University Medical Centre (Radboudumc), Nijmegen, The Netherlands.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are not publicly available as participants of this study did not agree for their data to be shared publicly.

ETHICAL APPROVAL

The study has been reviewed by the ethics committee on the basis of the Dutch Code of conduct for health research, the Dutch Code of conduct for responsible use, the Dutch Personal Data Protection Act and the Medical Treatment Agreement Act. The study does not fall within the remit of the Medical Research Involving Human Subjects Act (WMO). CMO File number: 2021/13035.

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