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Psoriasis in Norway

By

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PREFACE

The present work, Psoriasis in Norway, was carried out during the years 1987–1988 while I was a student at the Center for Health Administration, University of Oslo, Norway. It is based on information obtained from a health interview survey conducted by Central Bureau of Statistics of Norway in 1985 of a representative sample of 10 576 persons of the Norwegian population, and consists of two articles which are part of a thesis for the Master of Health Administration degree.

I express my sincere gratitude to the Head of the Center for Health Administration, Professor Ole Berg, for his support and interest and for being a constant source of inspiration

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Oslo, December 1988.

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Prevalence of Psoriasis in Norway

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Information on prevalence of psoriasis was obtained from a health interview survey conducted by Central Bureau of Statistics of Norway in 1985 of a representative sample of the Norwegian population. Altogether 149 cases of psoriasis were registered in the study population of 10 576 persons, giving an overall prevalence of 1.4%, with no difference between males and females. A peak prevalence was observed in the age group 30–49 years, and a significantly lower prevalence of 0.5% was found in Hedmark and Oppland counties, as compared with the country as a whole. A higher prevalence of psoriasis among females was found in urban vis-à-vis rural areas, and in urban areas, the prevalence was higher for females than for males. No difference in prevalence was found between various socio-economic groups. ***Key words: Interview survey, domicile, sex, age, socio-economic status, psoriasis.***

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Psoriasis is a common skin disease. However, prevalence is found to differ between races as well as geographically (1). The disease seems to be rare in American Indians (2), and in members of the Mongoloid race (3). A high prevalence of 2.84% was found by Lomholt in the Faroe Islands (4). Another large-scale population study was performed by Hellgren in Sweden, who found a prevalence ranging between 1.3% and 2.5% in different parts of Sweden (5). In Norway a low prevalence of 0.6% was found in Norwegian Lapps, living in North Norway (6). In contrast, an overall 'life-time' prevalence of 4.8% was found in the district of Tromsø in North Norway (7).

Apart from these two studies on limited population groups, there are, to our knowledge, no other published prevalence studies on psoriasis in Norway. In order to establish the prevalence data for Norway as a whole, data from a health survey of the Norwegian population were analysed. This paper presents results from this investigation.

MATERIALS AND METHODS

In 1985, the Central Bureau of Statistics of Norway organized a health interview survey to obtain comprehensive information on health and related problems in the population as a whole, and to reveal inequalities with regard to health conditions between different groups of the population (8).

The sample

The sample was drawn by random procedure from the total (non-institutionalized) population. A total of 5 502 households with 13 438 individuals were included. Non-responders were 21.3%, leaving interview data from 10 576 individuals in the study.

Collection of data

The data were collected by a trained but not medically educated interviewer in October 1985, using a structured questionnaire. To obtain prevalence data for various diseases, the responders were asked to report any disease. This information was later coded according to the 3-digit code of the International Classification of Diseases of 1968 (ICD 8th revision) by a trained medical recorder.

The questionnaire also contained several questions about background data, of which sex, age, region and socio-economic status are used in this paper. Socio-economic status was determined by using standard for socio-economic classification (9).

Statistical methods

Various statistical methods in the personal computer version of the Statistical Package for the Social Sciences (SPSS/PC+, SPSS Inc.) was used. The indirect age adjustment method was used to calculate age-adjusted rates.

RESULTS

Table I shows the distribution of psoriasis according to sex and age. A total of 149 cases of psoriasis was found, giving an overall prevalence of 1.4%. No significant different prevalences of psoriasis for males and females were found in any age group. There was however, a significant difference ($p < 0.05$) between the prevalence of psoriasis in age groups 16–29 and 30–49 in females. A tendency to a higher prevalence in the age group 30–49 seemed to be present in both

Table I. *Prevalence of psoriasis according to age and sex in Norway, 1985*

Age (years)	Male				Female			
	Total no.	Psoriasis			Total no.	Psoriasis		
		No.	%	SD		No.	%	SD
0–6	503	0	0		480	0	0	
7–15	717	4	0.6	0.35	780	4	0.5	0.32
16–29	983	14	1.4	0.46	*1 061	13	1.2	0.41
30–49	1 440	31	2.2	0.47	*1 429	38	2.7	0.53
50–66	858	11	1.3	0.47	910	18	2.0	0.57
67–79	510	10	2.0	0.76	608	6	1.0	0.49
80–	111	0	0		186	0	0	
Total	5 122	70	1.4		5 454	79	1.4	

SD = Standard deviation, %.
* The difference between the percentages of psoriasis in the age groups 16–29 and 30–49 in females is significant, 1.5% ∓ 1.31%, confidence interval 95%. There are no significant differences between males and females in any age group.

sexes, compared with both younger and older individuals.

Table II shows the prevalence of psoriasis according to county and sex. No significant differences in prevalence were found between males and females in any of the counties. A significantly lower prevalence of 0.6%, age-adjusted rate 43, for males, and 0.4%, age-adjusted rate 26, for females, was found in Hedmark & Oppland, as compared with the overall prevalence in Norway. The higher prevalence in Troms & Finnmark, 3.0% and age-adjusted rate 216 for males, and 2.7% and age-adjusted rate 189 for females, was not statistically significantly higher than the overall prevalence.

Table III shows the prevalence distribution of psoriasis according to sex and residence in rural or urban areas. It can be seen that there was a significantly higher prevalence among females living in urban vis-

Table II. *Prevalence of psoriasis according to region of residence and sex in Norway, 1985*

Region	Males				Females			
	Total no.	Psoriasis			Total no.	Psoriasis		
		No.	%	SMI		No.	%	SMI
Akershus	497	12	2.4	174	528	7	1.3	88
Oslo	486	5	1.0	70	566	13	2.3	153
Østfold & Vestfold	490	7	1.4	104	500	11	2.2	147
Hedmark & Oppland	477	3	0.6	43	503	2	0.4	26
Buskerud & Telemark	523	6	1.1	81	572	9	1.6	110
Agder & Rogaland	686	7	1.0	76	714	11	1.5	106
Hordaland & Sogn & F.	598	5	0.8	63	620	5	0.8	57
Møre & Romsdal	313	3	1.0	68	338	4	1.2	83
Trøndelag	470	9	1.9	138	538	7	1.3	92
Nordland	311	5	1.6	116	319	3	0.9	64
Troms & Finnmark	271	8	3.0	216	256	7	2.7	189
Norway	5 122	70	1.4	100	5 454	79	1.4	100

SMI = Age-adjusted rates.
The indirect age adjustment method was used to calculate age-adjusted rates. No significant differences in prevalence were found between males and females in the various counties. A significantly lower prevalence of psoriasis was found in Hedmark & Oppland as compared with the overall prevalence for Norway, difference: 0.9% ∓ 0.63%, with confidence interval 95%.

Table III. *Prevalence of psoriasis according to sex and domicile, rural or urban areas, in Norway 1985*

Living area	Males				Females			
	Total no.	Psoriasis			Total no.	Psoriasis		
		No.	%	SD		No.	%	SD
Urban areas	2 242	28	1.2	0.08	2 485	45	1.8	0.11
Rural areas	2 880	42	1.5	0.08	2 969	34	1.1	0.05
Total	5 122	70	1.4		5 454	79	1.4	

SD = Standard deviation, %.
A significantly higher prevalence was found among women living in urban, vis-à-vis rural areas. Difference: 0.7% ∓0.37%, confidence interval 95%. In urban areas a significantly higher prevalence was found among women as compared with men. Difference: 0.6% ∓0.55%, confidence interval 95%.

à-vis rural areas. Furthermore, among people in urban areas, there was a significantly higher prevalence among females than among men.

Table IV gives the prevalence of psoriasis according to socio-economic status for persons 16 years of age and older. There were no differences between the sexes in any socio-economic status group. Moreover, except for those unclassified, no differences were found between the various socio-economic status groups as compared with the overall prevalence in Norway. In the status group 'unclassified', a significantly lower prevalence of psoriasis was found.

DISCUSSION

A century ago, 4.5% of the skin disease cases treated at the outpatient dermatological department of The National Hospital (Rikshospitalet) were psoriasis (10).

The present study shows an overall prevalence of psoriasis in Norway of 1.4% without sex differences. The result derives from a representative sample, and this prevalence is therefore likely to represent the prevalence in the whole Norwegian population, as analysis of the non-responders did not reveal any significant differences between the net sample and the population (8). It may be regarded as a minimum prevalence, since there is the possibility that some persons might have had minor symptoms of psoriasis not diagnosed as such, and therefore not reported, while others may have forgotten a previous psoriatic outbreak.

The term 'psoriatic' is often used for a person who at any point in time has had psoriatic skin lesions. It is not clear whether the persons reporting the diagnosis were actually suffering from an outbreak at the time of the interview. It cannot be excluded that some of the persons who reported having psoriasis were actually symptom-free. If one includes persons who at any point in time have had psoriasis in 'lifetime' prevalence data, the figures will increase with age, provided psoriatics do not die earlier than others, and there is to our knowledge no evidence of that. The present results, showing decreasing prevalence with increasing age over 49 years, argues against our prevalence as being a 'lifetime' prevalence.

In the Tromsø area a 'lifetime' prevalence of 4.8% has been reported (7), while we found a prevalence of 2.8% for the northern part of Norway, including the Tromsø area. Such a high prevalence in the North

Table IV. *Prevalence of psoriasis according to socio-economic status for persons 16 years of age and older; Norway, 1985*

Socio-economic status	Psoriasis		
	Females (%)	Males (%)	Both (%)
Workers	1.8	1.7	1.7
Lower-level employees	1.8	2.0	1.9
Upper-level employees	1.9	1.6	1.7
Self-employed	1.2	1.4	1.3
Students	1.0	0.8	0.9
Pensioners	1.1	2.0	1.5
Working at home	2.9	4.0	2.9
Unclassified	0.3	0.3	0.3

Significantly fewer of those 'unclassified' had psoriasis, as compared with the overall prevalence in Norway, difference 1.1% ∓0.47%, confidence interval 95%.

might in part be explained by both genetics and the colder climatic conditions, with a long and dark winter. The Lapps in the North, i.e. the Finnmark area on the other hand, have a low 'lifetime' prevalence of 0.6% psoriasis (6), which may be attributed to a different ethnic origin. It is estimated that the prevalence for adults 'at any given moment' in North-West Europe is between 1.5% and 2% (11), which agrees with the findings in this study.

Our investigation indicates that psoriasis is distributed equally between the sexes. This agrees with the findings of others (1, 12). A tendency to a higher prevalence in the age group 30–49 years was present for both sexes, and the prevalence for females increased significantly from age group 19–29 to age group 30–49 years. Similar findings were reported from the Helsinki area in Finland (12), and may indicate that persons in this age group, who are usually in a very active phase of life, may be more prone to psoriasis outbreaks than are younger and older persons. The onset of psoriasis may occur at any age (5), and provided there is a constant incidence of psoriasis, and an equally long period with lesions present in every outbreak in all age groups, we would expect an increased prevalence with age. A higher prevalence of psoriasis with older age was reported in Sweden by Hellgren (5).

The prevalence data for the various counties of Norway (Table II) demonstrated a significantly lower percentage (0.5%) of psoriasis in Hedmark & Oppland as compared with the overall prevalence in Norway, while the northernmost part tended to have a higher prevalence (2.8%). A higher threshold for seeking medical attention for skin lesions—and thereby eluding diagnosis—might be a possible explanation for the low prevalence in Hedmark & Oppland. Access to skin specialists is no more difficult in this area than in other parts of Norway.

Apart from the lower prevalence of psoriasis in the heterogeneous, unclassified group, there were no differences between the prevalences found in the various socio-economic groups.

There was a significantly higher prevalence of psoriasis among females living in urban areas, vis-à-vis rural areas, and higher prevalence of psoriasis among women than among men in urban areas (Table III). In Oslo, 72% of all psoriatics were women. We have no explanation for this interesting finding, but environmental factors might play a role. Another explanation might be that psoriatic females move to urban areas, or simply that females in urban areas more often go to specialists and hence get a recorded diagnosis when they have skin lesions.

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Psoriatics in Norway

A Questionnaire Study on Health Status, Contact with Paramedical Professions, and Alcohol and Tobacco Consumption

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Information on health status, use of prescription-drugs, contact with paramedical professionals and alcohol and tobacco consumption was obtained from a health interview survey, conducted by the Central Bureau of Statistics of Norway in 1985, of a representative sample of the Norwegian population. A total of 149 cases of psoriasis were registered in the study population of 10 576 persons, giving an overall prevalence of 1.4%. Among psoriatics, 75% felt that they suffered from chronic disease, while 66% suffered from one or more diseases in addition, indicating an increased susceptibility to diseases other than psoriasis, in psoriatics. 46% of the psoriatics used prescription-drugs, indicating that in many cases both the psoriasis as well as the other disease(s) were mild or moderate, not requiring therapy. Psoriatics had few contacts with rep-resentatives of the paramedical professions. Rather, there was a tendency to turn to alcoholic drinks and in larger amounts, among psoriatics. Fewer were total abstainers, and males with psoriasis drank more frequently. Among psoriatics, daily cigarette smoking was more frequent (48%) than among non-psoriatics (36%), the difference being greatest among females.
Key words: Interview survey, psoriasis, health status, alcohol, tobacco.

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In order to obtain information neither usually gathered nor otherwise observable during office consultation or in the Department during hospitalization, social surveys and questionnaires can be used. Such investigations have studied various aspects of psoriasis and have previously been performed in the United States (1, 2), Sweden (3), Britain (4) and Norway (5). The latter study examined association with family history, lifestyle, diet and health in North Norway, where a significant association was demonstrated with family history and arthritis, but not versus the other factors.

The present study reports on a questionnaire study including a substantial number of psoriatics. The purpose of the study was to investigate if there were differences between the psoriatics and the rest of the sample, and it was focused on health problems, contact with the paramedical professions, and use of alcohol and tobacco.

MATERIALS AND METHODS

In 1985 Central Bureau of Statistics of Norway organized a health interview survey to obtain comprehensive information of health and related problems in the population as a whole, and to reveal inequalities with regard to health conditions between different groups of the population (6).

The sample

The sample was drawn by a random procedure from the total population, living outside institutions. A total of 5 502 households with 13 438 individuals were included. Non-responders were 21.3%, leaving interview data from 10 576 individuals in the study.

Collection of data

The data were collected by a trained but not medically educated interviewer in October 1985, using a structured questionnaire. To obtain prevalence data for various diseases, the responders were asked to report any disease. This information was later coded according to the 3-digit code of the International Classification of Diseases of 1968 (ICD, 8th revision) by a trained medical recorder.

In addition to data on diseases, the questionnaire contained several questions about background data. Data on contact with the paramedical professions, alcohol consumption/drinking habits and tobacco consumption/smoking habits are used in this paper.

Statistical methods

Various statistical methods in the personal computer version of the Statistical Package for the Social Sciences (SPSS/PC+, SPSS Inc.) were used.

Table I. *Numbers and percentages of males and females, psoriatics or non-psoriatics, who were present, previous, or never daily smokers*

	Males		Females		All	
Daily Smoker	Psor. *n* (%)	Non-psor. *n* (%)	Psor. *n* (%)	Non-psor. *n* (%)	Psor. (%)	Non-psor. (%)
Present	31 (47)	1 480 (39)	*36 (48)	1 286 (31.6)	*47.5	35.2
Previous	22 (33.3)	1 068 (28.1)	18 (24)	662 (16.3)	28.4	22.0
Never	*13 (19.7)	1 249 (32.9)	*21 (28)	2 121 (52.1)	*24.1	42.8
Total	66 (100)	3 797 (100)	75 (100)	4 069 (100)	100	100

* Statistically significant differences: $p<0.05$.

RESULTS AND DISCUSSION

In the sample of 10567 interviewed individuals a total of 149 cases of psoriasis were found. Mean age $\mp$ standard deviation and (range in years) was 36.4 $\mp$ 23.0 (0–97) for the total sample and 42.0 $\pm$ 16.8 (9–78) for the psoriatics.

Only 2% of the psoriatics, giving a prevalence of 0.5%, lived in communities classified as combined farming and industry communities, versus 6% of the non-psoriatics. The difference is statistically significant ($p<0.05$). This is consistent with the results in a previous study, where we found a significantly lower prevalence of psoriasis (0.5%) in Hedmark & Oppland counties (7) as compared with the country as a whole.

Health status

Self-assessment of health status revealed that among psoriatics 74.5%, versus 27% among non-psoriatics, reported to suffer from chronic disease ($p<0.05$). Fewer (30.9%) of the psoriatics than of the non-psoriatics (47.5%) reported having excellent health ($p<0.05$), and a higher proportion of psoriatics (23.5%) than of non-psoriatics (13.3%) reported having neither good nor poor health ($p<0.05$). Few psoriatics, and not differing from the non-psoriatics, assessed their health as being poor (6.0%) or very poor (0.7%).

Among the psoriatics, 65.8% suffered from one or more diseases in addition, while among non-psoriatics 54.6% suffered from one or more diseases. The difference is significant ($p<0.05$) and indicates increased susceptibility to diseases other than psoriasis, in psoriatics. Psoriatics did not, however, consult physicians, either specialists or general practitioners, more often, nor did they spend more days in hospital, than the rest of the sample during the 14 days preceding the interview.

Use of prescription drugs

Among psoriatics 46.3% used prescription-drugs because of disease in the 14 days preceding the interview, versus 21.8% among the rest of the sample, giving a significant difference ($p<0.01$). Taking into consideration that 65.8% of the psoriatics also suffered from one or more diseases in addition to psoriasis, this may indicate that in many cases both the psoriasis as well as the other diseases were mild or moderate, not requiring therapy.

Governmental support

Governmental support other than basic retirement pension, such as permanent disability pension, widow's pension or unmarried mother's support, was not more frequently received by psoriatics than by the rest of the sample. This indicates that even though psoriatics suffered from more diseases in addition to psoriasis, and reported having poorer health than the rest of the sample, this had not led to permanent disability.

Contact with paramedical professions

Contrary to the widespread belief that psoriatics more often seek help from representatives of the paramedical professions than do the rest of the population, we found that psoriatics had few contacts, and not more frequent than the rest of the population, with acupuncturists, zone-therapists, homeopaths, chiropractors and nature healers. Among the psoriatics, only 3 reported such contact, one with an acupuncturist, another with a zone-therapist and the third with a homeopath.

Alcohol consumption and drinking habits

The answers to questions about alcohol consumption and drinking habits revealed a tendency for psoriatics to drink alcohol more often than non-psoriatics. 85.8% of the psoriatics had consumed some alcohol during the last 12 months, compared with 76.9% of the non-psoriatics, a significant difference ($p<0.01$). Fewer of the psoriatics were total abstainers than among the non-psoriatics, but there was no greater number of high-consumers among psoriatics. The psoriatics reported unchanged alcohol consumption as compared with previous years. Psoriatic males reported a significantly more frequent alcohol consumption than non-psoriatic males ($p<0.05$). There was also a tendency to consume larger amounts of alcohol more often among psoriatics than among non-psoriatics.

The validity of self-reported alcohol consumption and alcohol problems is debated. Experience from a number of previous investigations indicates that there may be a systematic under-reporting, perhaps by as much as 50%, when questions about alcohol quantity are asked (8). And the rather high frequency of pathologic findings in liver biopsy specimens from psoriatic patients has led to speculation that alcohol abuse or alcoholism may be a concurrent problem (9).

One study reported an association between alcoholism and psoriasis in hospitalized males (10). Other investigations of the drinking habits of psoriatic patients have failed to establish any association between the two conditions (11–13).

Further studies with division of the psoriatics into groups according to the severity of the disease may be necessary to elucidate this question.

Tobacco consumption and smoking habits

Among the psoriatics, 58.2% reported smoking daily or occasionally, versus 43.5% of the non-psoriatics, a significant difference ($p<0.05$). Table I shows the numbers and percentages of present, previous, or never daily smokers according to gender and whether suffering from psoriasis or not.

Among psoriatics, a significantly greater proportion (47.5% versus 35.5%, $p<0.05$) were daily smokers, and a significantly lower proportion (24.1% versus 42.8%, $p<0.05$) were never daily smokers, as compared with non-psoriatics. As can be seen from Table I, the differences were greatest among females. This is in accordance with other studies from Norway showing that chronically ill middle-aged women constitute a group with an especially high daily smoking rate (14).

In a previous Norwegian study, cigarette smoking among men was particularly associated with an increased prevalence of psoriasis, compared with non-smokers, but with a decreasing prevalence of psoriasis with increasing consumption of cigarettes (5). Another study including 100 Yugoslavian psoriatic patients did not show any difference in tobacco consumption between psoriatic patients and healthy controls (15).

In conclusion, the more frequent daily smoking and the tendency among psoriatics to increased use of alcohol may reflect the burden of having a chronic disease. On the other hand, despite reporting poorer health, psoriatics do not seem to be more frequent users of the health system or receivers of public support than are the rest of the population.

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