Peer-relationship-problems account for quality of life impairments in pediatric psoriasis

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ABSTRACT

Objective: Most research on HRQoL-impairments in psoriasis has been conducted in adult patients, small pediatric patient samples or samples not representative of the pediatric population at large. We thus aimed to comprehensively describe HRQoL in pediatric psoriasis compared to psoriasis-free children and adolescents, identify domains most commonly affected and analyze its impact on HRQoL while controlling for important other predictors of HRQoL in a representative pediatric sample.
Methods: The impact of lifetime-prevalence of psoriasis on total and subscale HRQoL was analyzed by complex sample general linear models alone and adjusted for sociodemographic and clinical variables in a population-based sample (n = 6518) of children and adolescents aged 11–17.
Results: Total HRQoL and the physical domain were significantly affected by lifetime-psoriasis in univariate analysis. In multivariate analyses, lifetime-psoriasis significantly impacted on total HRQoL and the subscale 'quality of relationships with friends/peers'. Although substantial amounts of variance in HRQoL were explained by mental health, independent effects of lifetime-psoriasis remained after adjustment for this covariate. Total explained variance in total HRQoL was 20%.
Conclusion: Our findings suggest psoriasis to be a significant burden as it affects HRQoL even when controlling for mental health. Most of this effect appears to be driven by perceived impairments in the quality of relationship with friends/peers. How this exactly occurs needs to be explored in future research. Meanwhile clinicians need to be more attentive to this effect of psoriasis.

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1. Introduction

Psoriasis is a chronic, immune-mediated skin disorder that affects 1–3% of the population worldwide [1]. It is associated with cardiovascular disease [2] and increased mortality [3]. The majority of cases occurs during adulthood, however, about a third of patients may show the condition during the first two decades of their lives [4]. Exact population-based estimates of incidence and prevalence of juvenile psoriasis are, however, scarce. A British population-based study reported a lifetime prevalence of 0.6% for children aged 0–9 years and of 1.4% for children and adolescents aged 10–19 years [5], an Italian study a lifetime prevalence of 2.1% in children aged 12–17 years [6] and a German study a total prevalence of 0.12%–1.24% in individuals aged 1 to 18 years [7].

Psoriasis' socioeconomic burden is substantial [8,9] and detrimental effects on health-related quality of life (HRQoL) have been documented.

It has been shown to impose major limitations on all key dimensions of health-related quality of life (HRQoL) in adults [10–13] as well as children [14–17]. Major limitations may also arise from perceived disfigurement and social stigmatization [8,18–20]. Because the disease is usually persistent (psoriasis is often a lifelong skin disease although complete remission can occur), patients with a diagnosis of psoriasis usually need lifelong care and the impact on quality of life may consequently persist.

Most research on the impact of psoriasis on HRQoL has been conducted in adult patient samples [10–13], in (small) pediatric patient samples [14,16,17] or samples not representative of the pediatric population at large [15]. Varni [15] for instance, compared pediatric individuals with psoriasis with psoriasis-free individuals that were not matched for important sociodemographic data and the measurement of HRQoL was partly based on self-report and partly on parent proxy-report. What is still missing is a comprehensive analysis of population-based data looking at how psoriasis affects self-reported generic HRQoL in comparison to children and adolescents free from psoriasis.

Psoriasis has also been shown to be associated with mental health problems in adults [19,21] as well as children [22]. Several studies have observed a modifying effect of mental health on the relationship

between chronic disease and HRQoL [23–26] with one study even concluding that most of the impact of a chronic condition on HRQoL was confined to cases with co-occurring mental health problems [27].

It was the aim of the present analyses to

(i) comprehensively describe HRQoL in pediatric psoriasis in comparison to children and adolescents free from psoriasis
(ii) identify domains most commonly affected
(iii) analyze the impact of psoriasis on HRQoL while controlling for theoretically and empirically important other predictors of HRQoL

in a population-based representative sample of children and adolescents.

2. Methods

2.1. Design, participants and measures

We analyzed the public use file of the German Health Interview and Examination Survey for Children and Adolescents (KiGGS) [28]. The study was approved by the Federal Office for Data Protection and by the ethics committee of the university hospital Charité, Berlin [29]. KiGGS, which is a representative cross-sectional survey, was conducted from 2003 to 2006 in 167 sampling units (locations) in Germany. Within each sampling unit participants were randomly selected from the local population registries. From a total of 28,299 individuals invited 17,642 aged 0–17 years agreed to participate (response rate: 66.6%). A detailed description of the two-stage sampling method is provided elsewhere [30]. Of the 17,642 individuals taking part in the KiGGS, 6813 were children and adolescents aged 11–17 years. The present analyses are based on 6518 individuals for whom data on KINDL-R (Quality of Life in Children — Revised) [31,32] are available.

Data from the KiGGS used in this investigation are based on self-administered questionnaires completed by parents/caregivers, computer assisted personal interviews (CAPI) with parents/caregivers and children/adolescents' self-reports of HRQoL. The CAPI was conducted by physicians who were specifically trained for the purposes of the study and assessed the history of selected physician-diagnosed conditions. The lifetime prevalence of psoriasis was based on parents' reports in the CAPI.

HRQoL was measured by the German KINDL-R(evised) questionnaire which contains 24 items [31]. Its psychometric properties have been established [32]. Generic in nature it measures the following six dimensions of quality of life: Physical well-being (PWB), emotional well-being (EWB), self-esteem (SE), family (quality of relationship with family), friends (quality of relationship with friends), and everyday-functioning (well-being at school). The recall period is the past 7 days. It accounts for differences in development by providing different versions for different age groups. Items are scored on 5-point Likert scales (never, seldom, sometimes, often, always). A total score can be computed for each dimension by adding the respective items forming that dimension. An overall total KINDL-R score is computed by summing all 24 items. All scores are transformed into values ranging from 0–100. Larger scores denote better quality of life. For the present analysis the self-report version of the KINDL-R was used.

The database used for the present analyses also contains information (assessed by parent report) on age in years, gender (male vs. female), migration status (German versus migration background), weight and height. The latter two were used to compute the Body-Mass-Index which was used to classify overweight according to Krohmeyer-Hausschild [33,34]. The correlation of overweight as used in the present analyses with overweight as defined by the International Obesity Task Force (IOTF) [35] (now known as World Obesity/Policy & Prevention Federation) was r = 0.88, p < 0.001. It further contains data (education, occupation and family income) which is used to create the composite socioeconomic status (SES; low, medium, high) [36]. Finally, allergic sensitization was operationalized as yes (sensitization to at least one of 20 food- or aero-allergen) or no.

The self-report version of the Strengths and Difficulties Questionnaire (SDQ) [37], a brief 25-item behavioral screening questionnaire assessing emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems and prosocial behavior was used to provide a measure of mental health (normal, borderline, abnormal). Individual SDQ-items are scored on a 3-point scale (0 not true, 1 somewhat true, and 2 certainly true); higher scores suggest greater problems except for prosocial behavior, for which a higher score denotes more positive behavior. All items apart from the prosocial behavior items are used to calculate a total score (ranges 0–40) with higher scores being suggestive of more problematic behavior. According to the cut-offs provided [37] individuals are assigned to one of the three groups (≤15 = normal, >15 = borderline, >19 = abnormal mental health). The self-report SDQ's reliability and validity have been established across cultures [38].

2.2. Statistical analyses

Data was analyzed using SPSS 21 (IBM Statistics). Because of the specific sampling technique used in this survey, statistical analyses had to be adjusted to accommodate for the effects of that technique. Firstly, a cluster variable was specified to account for non-independence of observations within the 167 clusters (sampling points) from which individuals were recruited. This gives greater confidence in accepting a significant effect as 'real'. Failure to model the design effect (clustering) would lead to an underestimation of the respective standard errors and thus lead to less valid conclusions about the data. Secondly, data was weighted according to a weight factor correcting for deviations within the sample from the population structure in terms of age, gender, region and nationality [30]. In so doing, the findings become applicable to the population of German children and adolescents at large.

Thirdly, statistical estimation was based on complex samples to account for the clustered data. Data is not merely analyzed but models are built using information described above. Absolute and relative frequencies for categorical variables and means for continuous variables were used to describe the data. We used the general linear model (GLM) for complex samples to analyze differences in mean scores in HRQoL (total scale and subscales) between individuals with or without physician-diagnosed lifetime psoriasis. The GLM procedure for complex samples was also used to analyze the associations of the predictors with HRQoL in multivariate analysis. This procedure yields unstandardized Beta coefficients (B) and a measure of explained variance (R^2). Only those individuals for whom a definite 'yes' or 'no' answer to the question on ever physician-diagnosed psoriasis was present were included in the inferential analyses. The choice of covariates was based on evidence regarding their relationship with HRQoL and/or psoriasis.

3. Results

A summary of the sociodemographic and clinical characteristics of the sample is given in Table 1. A larger proportion belonged to the age-group 14–17 years. The gender distribution was fairly equal. Most of the sample came from a medium socio-economic background. Almost a fifth of the sample was overweight. Most of the sample did not show any signs of mental health problems. Table 1 also provides the lifetime prevalence of physician-diagnosed psoriasis in the sample. 1.9% had ever been diagnosed with psoriasis while in 1.8% of the participants the disease status could not be ascertained.

Table 2 reports the mean scores of the KINDL-R total and subscales as a function of presence of ever physician-diagnosed psoriasis. All scores were better when no psoriasis had ever been diagnosed. While the difference in total and physical functioning reached statistical significance no other differences became statistically significant at α < 0.05.

Table 3 presents the results of the seven multivariate analyses regressing KINDL-R total and subscale scores on physician-diagnosed psoriasis while controlling for all other variables. Psoriasis was significantly