**Materials and Methods**

*Data Source*

The National Health Interview Survey (NHIS) in Taiwan has been conducted by an experienced survey team every 4 years since 2001. This survey used a multistage stratified systematic sampling design to achieve a national representative sample of the whole population of Taiwan [18]. In-person interviews were used to collect information about the health status, health behaviors, and medical care use of the survey participants. We used data from four rounds (2001, 2005, 2009, and 2013) of the NHIS.

The National Health Insurance (NHI) program provides compulsory health insurance to approximately all residents in Taiwan, with an enrollment rate of 99%. The NHI Research Database (NHIRD) provides comprehensive information about the insured people, including details of demographics (sex, date of birth, and residential location) and claims data (outpatient and inpatient care, medical diagnoses, prescriptions, and operations). To protect individual privacy, personal identification numbers were encrypted before the data were released to the researchers. NHIRD data have been widely used in epidemiologic studies in Taiwan [19–23]. Permission was obtained from the NHIS participants to link to their NHIRD data for research purposes; the data of those who provided permission were included in the study. This method for linking the NHIS data to the NHIRD was used in several published studies [24, 10, 25]. The dataset linkage process was performed at the Data Center of the Ministry of Health and Welfare.

*Study Population*

Participants aged ≥12 years were selected from the four rounds of the NHIS database. Among the 84,249 respondents, 86.9% (*n* = 73,218) consented to our linking of their NHIS data to the NHIRD records. We excluded participants with a previous psoriasis diagnosis (*n* = 110), an unknown body mass index (BMI; *n* = 1,907), or unknown covariates (*n* = 11,065). Participants were followed from the time of the NHIS interview until a diagnosis of psoriasis was made, death occurred, or December 31, 2017, was reached. Deaths were confirmed by linking to the death certificate database of Taiwan.

*Psoriasis Diagnosis*

The primary outcome for the analysis was incident psoriasis defined according to the International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM) codes 696.0 and 696.1 and the Tenth Edition, Clinical Modification (ICD-10-CM) code L40 from the NHIRD. Participants were considered to have psoriasis only if the diagnosis was made by dermatologists or rheumatologists and the condition occurred at least once in an inpatient setting or required ≥3 outpatient visits. Psoriatic arthritis was defined by the presence of ≥1 inpatient claim or ≥3 outpatient claims of ICD-9-CM code 696.0 and ICD-10-CM code L40.5 during the same period. The psoriasis identification algorithm was validated by Lee et al. [26] with a positive prediction value of 98.5%.

*BMI Measurement*

Participant heights and weights were obtained from four rounds of the NHIS questionnaire. Standardized measurements of height and weight were made by trained technicians at the time of the survey. BMI was calculated as weight in kilograms divided by height in meters squared. According to the Asia-Pacific obesity classification [27], the BMI was categorized as underweight (<18.5 kg/m²), normal weight (18.5–22.9 kg/m²), overweight (23.0–24.9 kg/m²), class I obesity (25.0–29.9 kg/m²), and class II obesity (≥30 kg/m²).

*Covariates*

Sociodemographic characteristics included marital status, educational level, and monthly household income. Marital status was categorized as unmarried, married/cohabiting, and other (e.g., widowed, divorced, separated, or single parent). Educational level was classified as elementary or lower, high school, and university or higher. Monthly household income was classified as TND <30,000, 30,000 to <70,000, and ≥70,000 (approximately USD <1000, 1000 to <2233, and ≥2,333). Smoking status was classified as never, former, or current. Alcohol consumption was classified as never, social, or regular.

*Comorbidities*

The presence of comorbidities was identified from the NHIRD, including cancer (ICD-9-CM codes 140–208; ICD-10-CM codes C00–C96, D00–D09), diabetes (ICD-9-CM code 250; ICD-10-CM codes E08–E13), hyperlipidemia (ICD-9-CM code 272; ICD-10-CM code E78), hypertension (ICD-9 codes 401–405; ICD-10-CM codes I10–I16), coronary artery disease (ICD-9-CM codes 410–414; ICD-10-CM codes I20–I25), cerebrovascular disease (ICD-9-CM codes 430–438; ICD-10-CM codes I60–I69), chronic obstructive pulmonary disease (ICD-9-CM codes 491, 492, 496; ICD-10-CM codes J41–J44), asthma (ICD-9-CM code 493; ICD-10-CM code J45), chronic liver disease (ICD-9-CM code 571; ICD-10-CM codes K70–K77), chronic kidney disease (ICD-9-CM codes 580–587; ICD-10-CM codes N00–N19), and connective tissue disease (ICD-9-CM codes 710, 714; ICD-10-CM codes M05–M08, M30–M36). Participants were considered to have a comorbidity only if the condition occurred at least once in an inpatient setting or required ≥3 outpatient visits.

*Statistical Analysis*

The baseline characteristics of the cohort are presented according to BMI category. Continuous data were tested for normality. The Cochran Armitage trend test was used to determine the trend in psoriasis incidence and the participants’ characteristics by BMI.

The univariable Cox regression model assessed the crude association of BMI and other covariates with incident psoriasis by computing the hazard ratios (HRs) and the corresponding 95% confidence intervals (CIs). A multivariable Cox regression model estimated the independent association between BMI and incident psoriasis after the adjustment for potential confounders. Backward elimination method using a *p* value >0.05 as removal criterion was applied for the multivariable regression. To assess with robustness of our results, sensitivity analyses were performed to minimize the influence of potential bias. In Model 1, we performed a Cox regression model using age as the time scale to assess bias due to the association between age and the incidence of psoriasis. To evaluate the potential for selection bias in the record linkage process, we included all the participants with or without missing covariates and used a missing-at-random model to manage the missing data in Model 2. In addition, a restricted cube spline analysis was conducted to assess the correlation between BMI and psoriasis risk. Adjusted HRs with 95% CIs indicate the strength and direction of these associations. Two-sided *p* values <0.05 were considered statistically significant. Stratified analyses were performed according to sex, age, presence or absence of metabolic diseases, and number of metabolic diseases. Data management and analyses were performed with SAS software (version 9.4; SAS Institute, Cary, NC, USA).