

Burden of restless legs syndrome on health-related quality of life

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Abstract

Objective To quantify the total and unique burden of Restless Legs Syndrome (RLS) on patient-reported health-related quality of life (HRQoL). **Methods** The disease burden that RLS places on HRQoL was estimated by comparing Short-Form (SF-36) scores between individuals with RLS and several patient and general populations in the US. Regression methods were applied to estimate SF-36 normative values from the general population sample and statistically adjust them to match age, gender and disease comorbidity characteristics of the RLS sample. Significance tests were then used to compare the means across samples. **Results** All SF-36 measures were significantly below adjusted US general population norms. Five of the eight scales (physical functioning, role physical, bodily pain, general health, vitality) were below US norms by 0.8 or more standard deviations (SD), while the

remaining three (social functioning, role emotional, mental health) were 0.5 SD below norm. The burden of RLS was greater on physical than on mental/emotional HRQoL (physical and mental summary scores were 1.08 and 0.40 SD below norm, respectively), and greater than that observed for type-2 diabetes. **Conclusion** After controlling for the impact of age, gender, and disease comorbidity, RLS was associated with unique burden on both physical and mental aspects of HRQoL.

Keywords Burden of illness · Restless legs syndrome · Quality of life

Abbreviations

HRQoL	Health-related quality of life
IRLSSG	International Restless Legs Syndrome Study Group
OA	Osteoarthritis
QoL	Quality of life
RLS	Restless legs syndrome
SF-36	Short-Form 36
SD	Standard deviation

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Introduction

Restless Legs Syndrome (RLS) is a neurological movement disorder characterized by an irresistible urge to move the legs while at rest. The urge to move is usually accompanied or prompted by uncomfortable sensations in the legs, which have been described with terms such as creeping, burning and throbbing [4].

Specific diagnostic criteria of the disorder were established by the International Restless Legs Syndrome Study Group (IRLSSG) [4] and consist of: (i) an urge to move the extremities, frequently associated with paresthesias/dysesthesias; (ii) temporary relief of the urge with movement; (iii) onset or worsening of the symptoms at rest or inactivity; and (iv) worsening or onset of symptoms in the evening or at night. Various studies have estimated the prevalence of RLS in adults at 5–10% [3], with a higher prevalence in the elderly [13]. RLS is more common in women [2] and has a variable age of onset [14].

The night-time exacerbation of RLS symptoms often results in marked sleep disturbances [4], particularly in patients with moderate-to-severe RLS. As a result, individuals with RLS may experience chronic sleep deprivation, daytime sleepiness and stress, which can interfere with daily role functioning. Those with RLS also report that the condition inhibits their enjoyment of life and negatively impacts their social activities, family life and occupational pursuits [7]. For instance, individuals with RLS often have difficulty participating in activities requiring prolonged periods of sitting (e.g. going to the movies or travelling), as long periods of rest often cause exacerbation of symptoms [7].

Although the sleep disturbances associated with RLS are well documented, there are relatively few studies that have systematically examined the impact of RLS across a range of health-related quality of life (HRQoL) domains [2, 9]. HRQoL refers to an individual's perception of overall life satisfaction in relation to health concepts across a number of broad domains that often include: physical functioning, social functioning, role functioning, mental health, and general health.

Individuals with RLS have been shown to have significantly lower HRQoL (as measured by the Short-Form 36 [SF-36] Health Survey physical and mental health scores) compared with demographically matched control subjects [16]. Indeed, individuals with RLS are 2.4 times more likely to report only fair or poor general health than those without RLS [15].

A study of 85 US adults with RLS [2] provided a preliminary indication of the overall impact of RLS on patients' HRQoL by comparing their SF-36 scores to published general population norms. Individuals with RLS scored significantly lower on physical functioning, bodily pain, role functioning, mental health, general health and vitality compared with the general US population. The impact of RLS on HRQoL was found to be similar to, or worse than, conditions such as hypertension, angina, diabetes and osteoarthritis (OA).

These results were, however, specific to a patient population that had been referred to a specialist clinic for RLS. Thus, it is possible that individuals in this sample may not have been representative of RLS sufferers overall. As a result of this and other potential study limitations, further studies are needed to assess the impact of RLS on HRQoL.

Most importantly, to evaluate the unique burden that RLS places on HRQoL, analyses must be included that control for both demographic covariates (e.g. age and gender) and comorbid conditions. Estimates of the *total* burden that RLS places on HRQoL are calculated by comparing an RLS sample with a general population sample that is matched according to demographic case mix. The *unique* burden that RLS places on HRQoL is estimated by first adjusting both samples for the presence of unrelated comorbid conditions (i.e. removing variation in scores that is related to the presence of other medical conditions) and then comparing the samples matched according to demographic case mix. Additionally, the *total* and *unique* burden of RLS on HRQoL relative to three chronic condition patient populations, type-2 diabetes, depression and OA, were compared.

Methods

Study population and sample

Potential study recruits were identified as suffering from RLS via a telephone screening that was administered to a nationwide sample of US adults. The sample was constructed to match population proportions of the four US Census regions (Northeast, Midwest, South, and West) and gender. Each telephone number was chosen by random-digit dialing and trained telephone interviewers conducted the survey. Only one participant was sampled per household. Participants were asked to join the study if they were aged 18 years or older and met RLS screening criteria by answering 'yes' to having experienced all of the following symptoms: (i) recurrent, uncomfortable feelings or sensations in the legs while sitting or lying down; (ii) recurrent need or urge to move the legs while sitting or lying down; (iii) the disappearance/improvement of uncomfortable feelings or sensations in the legs, or the need or urge to move, when active or moving around; and (iv) night-time worsening of these uncomfortable feelings, or this urge to move, compared with the morning. Additionally, respondents had to meet criteria for frequency and distress of RLS symptoms: individuals were included if they

reported that the frequency of uncomfortable feelings/sensations in the legs occurred at least 2–3 days/nights per week and that these symptoms were moderately or extremely distressing [10]. This rigorous screening process resulted in a subpopulation of 187 study participants out of 5964 individuals screened, yielding a prevalence rate of approximately 3.1%. When considering the stringent screening criteria applied here, this prevalence rate is consistent with that observed in epidemiological studies [3]. The subpopulation of individuals identified as having RLS using the above criteria were asked additional health-related questions, including those from the SF-36 Health Survey. Of these 187 individuals, a total of 158 provided responses.

General health status measures

The SF-36 Health Survey (v1), a reliable and valid self-report measure was used to assess health-related quality of life [19–21]. The SF-36 contains 36 items, 35 of which are aggregated to score eight health scales: physical functioning, role limitations due to physical health, bodily pain, general health perceptions, vitality, social functioning, role emotional and mental health. Scores on the eight scales were aggregated further to produce physical and mental component summary measures. All SF-36 scales were scored using norm-based methods that standardize the scores to a mean of 50 and a standard deviation (SD) of 10 in the general US population; higher scores indicate better health [19, 20]. To ensure that the item-level SF-36 data from the current study met required scaling assumptions and minimum standards of reliability, as recommended by the developers [17], the data were examined with multi-trait/multi-item methodology [18]. Because items and scales performed in accordance to the SF-36 measurement model, results can be interpreted using the standard SF-36 interpretation guidelines.

Burden of RLS on HRQoL

To estimate the disease burden that RLS places on HRQoL, SF-36 scores of individuals with RLS were compared with norms from patient and general populations in the US [20]: (i) 1998 general US population, the latest US norms available; (ii) type-2 diabetes; (iii) depression; and (iv) OA. These conditions were chosen as disease benchmarks based on availability of data and because they have fairly well established epidemiological and clinical characteris-

tics. Regression methods were applied to estimate normative values statistically adjusted to match the age and gender characteristics of the RLS sample and to test for significance across samples. Comparisons to norms were conducted maintaining the case-mix of conditions and comorbidities that both the RLS sample and general population survey respondents presented, to yield the ‘total’ HRQoL burden. Additional analyses were conducted to yield the ‘unique’ HRQoL burden, by statistically adjusting for comorbid disease conditions with a current diagnosis. Specifically, to obtain estimates of the unique burden of RLS, the SF-36 scores of RLS patients were statistically adjusted for the presence of obesity, asthma, chronic obstructive pulmonary disease (COPD), epilepsy, folate deficiency, rheumatoid arthritis, and high blood pressure; that is, the burden presented by these comorbidities to RLS were statistically removed from the SF-36 scores of RLS patients, resulting in a ‘purified’ estimate of the burden of RLS.

Results

Characteristics of the RLS sample

Individuals with RLS had a mean age of 53.25 years (range: 18–83 years) and 63% were female. As shown in Table 1, a little over 50% of the sample reported experiencing RLS symptoms every day or night. Over 40% of the sample found the severity of the RLS symptoms to be ‘extremely distressing’. A lost-cases analysis revealed that no significant demographic or symptom profile differences existed between individuals with RLS who completed the additional health questions ($n = 158$) and those who did not ($n = 31$).

Table 1 Patient characteristics

Demographic variable	
Sample size, n	158
Mean age, years (range)	53.25 (18–83)
Female, n (%)	100 (63)
Frequency of RLS symptoms	
Every day/night, n (%)	80 (51)
4–5 days/nights per week, n (%)	37 (23)
2–3 days/nights per week, n (%)	41 (26)
Severity of RLS symptoms	
Extremely distressing, n (%)	66 (42)
Moderately distressing, n (%)	92 (58)

Total burden of RLS on HRQoL

Comparisons of SF-36 scores with demographically adjusted 1998 general US population norms showed that the HRQoL of the RLS sample was significantly below normative values for all SF-36 scales and summary measures (Table 2). Differences in the means were greatest in bodily pain ($\mu = 10.69$), physical functioning ($\mu = 9.68$) and general health ($\mu = 8.96$), where respondents' scores were between 0.9 and 1.1 SD below norm; scores on social functioning and role emotional were 0.7 and 0.4 below norm.

Relative to the other measures, mental health appears to be less affected by RLS. Scores on both the mental health scale and the mental component summary for individuals with RLS were 0.6 and 0.4 SD below the norm, respectively; however, these still reflect a sizable and clinically meaningful burden of RLS on mental health. In fact, 31% of the RLS sample were observed at risk for diagnosis of clinical depression (defined by a mental component summary score of less than or equal to 42 [6, 19], a proportion that is substantially higher than the 1998 US general population prevalence rate of 19% [6, 19].

When compared with the HRQoL burden of type-2 diabetes, depression and OA, the burden of RLS remained substantial (Table 2). In particular, the burden of RLS on HRQoL was greater than that of type-2 diabetes in 8 of the 10 SF-36 scales and summary measures (all except general health perceptions and the role emotional domain), as scores for the RLS sample were lower than those of the type-2 diabetes sample by as much as a full SD (e.g. bodily pain). Scores for the RLS sample were lower (indicating greater impairment) than those of the depression sample for physical functioning, bodily pain, vitality and the physical component summary, while they were higher than the depression sample on role emotional, mental health and the mental component summary. Finally, HRQoL scores of the RLS sample were generally equivalent to those of the OA sample, where all scores were similar to RLS except for physical functioning, bodily pain, vitality and the physical component summary. In these domains, the RLS sample had scores somewhat lower than those of their OA counterparts.

Unique burden of RLS on HRQoL

When the RLS and normative samples were adjusted for the presence of unrelated comorbid medical conditions, comparisons of SF-36 scores with demographically adjusted 1998 general US population

norms showed that the HRQoL of the RLS sample was significantly below normative values for all SF-36 scales and summary measures to an even greater extent compared with the total burden (Table 3). Differences were greatest in bodily pain ($\mu = 13.56$), general health ($\mu = 12.22$) and vitality ($\mu = 10.13$), where RLS sample scores were between 1.0 and 1.4 SD below norm. RLS sample scores on mental health and role emotional were 0.7 and 0.6 below norm, respectively.

The unique burden of RLS on HRQoL compared with that for type-2 diabetes and depression is similar to the analysis of total burden (Table 3). However, comparisons of the unique burden of RLS on HRQoL with that for OA resulted in substantially different results from those observed in the analyses of total burden. In particular, the unique burden of RLS on HRQoL was significantly greater than that of OA for 8 of the 10 SF-36 scales and summary measures (all except the role emotional domain and mental component summary). Examining the specific content of items on those HRQoL scales that showed the greatest unique burden for the RLS sample is helpful in understanding where the impact of the disorder is most felt on a day-to-day basis. For instance, when asked to what degree pain interfered with normal work (including both work outside the home and housework) during the past 4 weeks, 44% of the US general population sample and 63% of the RLS sample reported at least 'a little bit' or more. When asked to indicate how true or false the statement "My health is excellent" over the past 4 weeks, 19% of the US general population and 50% of the RLS sample reported the statement to be either 'mostly false' or 'definitely false'. Finally, when asked to indicate how much of the time during the past 4 weeks "Did you feel tired?", 11% of the US general population sample and 31% of the RLS sample reported either 'all of the time' or 'most of the time'.

Discussion

At present, there are only a couple of studies that have explicitly examined the burden of RLS on HRQoL [e.g. 2, 5, 10]. Abetz and her colleagues (2004) provided clear evidence that patients diagnosed with RLS exhibit burdened HRQoL across a number of domains relative to US general population norms [2]. Their data, however, consisted of 85 patients referred to a single sleep medicine clinic, and therefore may not be representative of this population. Moreover, their analysis was limited to comparing sample means

Table 2 Total burden of RLS: study sample compared with general US population normative data

	Norms				Significance testing																			
	RLS target sample (n = 158)		US population norms*		RLS vs. general population		RLS vs. diabetes		RLS vs. depression		RLS vs. osteoarthritis													
	Mean	SE	Mean	SE	Mean difference in SD units [†]	F	Mean difference in SD units [†]	F	Mean difference in SD units [†]	F	Mean difference in SD units [†]	F												
SF-36 scales																								
Physical functioning	38.36	1.04	48.04	0.23	43.43	0.61	42.76	0.37	41.34	0.66	9.68	0.97	138.78 [#]	5.07	0.51	23.65 [#]	4.40	0.44	22.66 [#]	2.98	0.30	8.25		
Role physical	40.70	0.96	48.90	0.24	42.99	0.61	40.26	0.39	41.85	0.68	8.20	0.82	96.35 [#]	2.29	0.23	6.05 [§]	-0.44	0.04	0.16	1.15	0.11	1.42		
Bodily pain	38.45	0.83	49.14	0.24	48.46	0.59	45.55	0.38	39.98	0.55	10.69	1.07	161.82 [#]	10.01	1.00	91.83 [#]	7.10	0.71	58.02 [#]	1.53	0.15	4.71 [§]		
General health	40.52	0.92	49.48	0.24	42.42	0.52	41.88	0.36	42.10	0.62	8.96	0.90	111.73 [#]	1.90	0.19	2.87	1.36	0.14	2.91	1.58	0.16	2.91		
Vitality	41.62	0.98	50.30	0.24	47.83	0.54	44.05	0.35	44.86	0.59	8.68	0.87	103.44 [#]	6.21	0.62	36.29 [#]	2.43	0.24	7.72	3.24	0.32	12.04 [†]		
Social functioning	42.91	1.08	49.71	0.24	48.37	0.57	43.14	0.40	43.76	0.72	6.80	0.68	61.18 [#]	5.46	0.55	24.83 [#]	0.23	0.02	0.10	0.85	0.09	0.74		
Role emotional	45.47	1.05	49.90	0.24	46.37	0.63	39.48	0.47	45.23	0.76	4.43	0.44	27.24 [#]	0.90	0.09	0.38	-5.99	0.60	25.11 [#]	-0.24	0.02	0.68		
Mental health	44.92	1.06	50.43	0.24	49.50	0.55	40.35	0.42	47.54	0.63	5.51	0.55	42.89 [#]	4.58	0.46	15.86 [#]	-4.57	0.46	17.02 [#]	2.62	0.26	3.15		
SF-36 summary measures																								
Physical summary	37.56	0.97	48.32	0.23	43.22	0.58	44.24	0.38	39.67	0.63	10.76	1.08	170.77 [#]	5.66	0.57	33.55 [#]	6.68	0.67	50.77 [#]	2.11	0.21	6.90		
Mental summary	46.79	1.09	50.82	0.23	49.95	0.54	41.00	0.45	47.94	0.67	4.03	0.40	23.79 [#]	3.16	0.32	7.20 [#]	-5.79	0.58	25.44 [#]	1.15	0.12	0.16		

RLS = restless legs syndrome; SF-36 = Medical Outcomes Study Short-Form 36 Health Survey

*1998 US general population norms were adjusted to the age and gender characteristics of the target RLS sample

[†]1986 US Medical Outcomes Study population norms were adjusted to the age and gender characteristics of the target RLS sample

[‡]SD = 10 for all SF-36 scales and summary measures; difference in SD units = mean difference/10

[§]P < 0.05; ^{||}P < 0.01; ^{††}P < 0.001; [#]P < 0.0001.

Table 3 Unique burden of RLS: target sample adjusted for comorbidities compared with general US population normative data

	Norms adjusted for comorbidities				Significance testing																	
	RLS target sample adjusted for comorbidities (n = 158)	Healthy adult general US population norms* (n = 6742)	US population norms for type-2 diabetes† (n = 570)	US population norms for depression† (n = 1334)	US population norms for osteoarthritis* (n = 968)	RLS vs. general US population	RLS vs. type-2 diabetes	RLS vs. depression	RLS vs. osteoarthritis													
	Mean	SE	Mean	SE	Mean	Differ-ence in SD units‡	Mean differ-ence in SD units‡	Mean differ-ence in SD units‡	Mean Differ-ence in SD units‡													
SF-36 scales																						
Physical functioning	43.97	1.68	52.98	0.32	45.60	1.01	44.59	0.76	47.07	1.27	9.01	0.90	198.53 [#]	1.63	0.16	27.54 [#]	0.62	0.06	25.87 [#]	3.10	0.31	17.97 [#]
Role physical	45.05	1.62	54.01	0.33	46.84	1.01	41.55	0.85	48.69	1.31	8.96	0.90	132.82 [#]	1.79	0.18	6.68 [§]	-3.50	0.35	0.06	3.64	0.36	6.81
Bodily pain	42.27	1.40	55.83	0.33	50.52	0.99	47.28	0.79	45.83	1.05	13.56	1.36	228.93 [#]	8.25	0.83	93.72 [#]	5.01	0.50	61.03 [#]	3.56	0.36	13.57 [†]
General health	43.71	1.57	55.93	0.33	44.13	0.88	44.20	0.75	49.49	1.19	12.22	1.22	159.69 [#]	0.42	0.04	2.37	0.49	0.05	3.45	5.78	0.58	10.54
Vitality	45.37	1.68	55.50	0.29	49.39	0.83	45.91	0.56	49.66	1.07	10.13	1.01	143.95 [#]	4.02	0.40	35.86 [#]	0.54	0.05	8.49	4.29	0.43	22.12 [#]
Social functioning	46.59	1.86	53.94	0.30	49.68	0.87	43.85	0.65	50.46	1.31	7.35	0.73	86.27 [#]	3.09	0.31	24.30 [#]	-2.74	0.27	0.13	3.87	0.39	4.80 [§]
Role emotional	46.63	1.84	52.96	0.30	48.62	0.94	40.41	0.75	49.50	1.39	6.33	0.63	32.57 [#]	1.99	0.20	0.26	-6.22	0.62	24.64 [#]	2.87	0.29	0.00
Mental health	47.56	1.84	54.52	0.29	51.08	0.85	40.71	0.67	51.62	1.16	6.96	0.70	60.94 [#]	3.52	0.35	15.37 [†]	-6.85	0.69	16.74 [#]	4.06	0.41	8.26
SF-36 summary measures																						
Physical summary	42.76	1.57	54.51	0.32	45.77	0.97	46.21	0.83	46.31	1.21	11.75	1.18	246.04 [#]	3.01	0.30	37.29 [#]	3.45	0.35	56.08 [#]	3.55	0.36	17.06 [#]
Mental summary	48.19	1.90	54.50	0.29	51.68	0.82	41.32	0.73	52.19	1.23	6.31	0.63	31.71 [#]	3.49	0.35	6.81	-6.87	0.69	25.10 [#]	4.00	0.40	1.88

RLS = restless legs syndrome; SF-36 = Medical Outcomes Study Short-Form 36 Health Survey. Comorbid conditions included obesity, asthma, chronic obstructive pulmonary disease (COPD), epilepsy, folate deficiency, rheumatoid arthritis, and high blood pressure

*1998 US general population norms were adjusted to the age and gender characteristics of the target RLS sample

†1986 US Medical Outcomes Study population norms were adjusted to the age and gender characteristics of the target RLS sample

‡SD = 10 for all SF-36 scales and summary measures; difference in SD units = mean difference/10

§P < 0.05; ||P < 0.01; †P < 0.001; #P < 0.0001

(patient vs. age- and gender-adjusted norm mean), with no correction for the contribution of comorbid conditions in either sample. Hence, it was impossible to determine whether RLS or an associated condition was indeed contributing to the actual burden on HRQoL [2].

The analyses presented here are an extension of the results obtained by Allen and colleagues as part of the REST (RLS Epidemiology, Symptoms, and Treatment) general population study. As described in our Methods section, this study sample was drawn from the general population using the full standard diagnosing criteria for RLS [5], thereby avoiding the limitations of using a single site clinic [e.g. 2]. Similar to Abetz and colleagues [2], the initial analyses of the REST study data were only compared to age- and gender-adjusted norms, and therefore made it impossible to determine if the disease burden observed in these individuals was associated with RLS or comorbid conditions. The present study examined the unique burden of RLS on HRQoL after controlling for the presence of comorbid conditions in both the REST sample and the normative population.

Individuals with RLS reported substantially lower functioning and well-being compared with demographically adjusted norms from the 1998 US general population, across all physical and mental health domains measured by the SF-36. Compared with US population norms, the total burden of RLS appeared to be greatest in the physical health domains, particularly for bodily pain and the physical component summary, where the RLS sample was over 1.0 SD below norm. There was also a sizable burden of RLS on mental health, where the RLS sample was lower than norm for all mental health domains, the largest differences (over 0.7 SD) observed for vitality and social functioning. These results for total burden are consistent with recent reports by Abetz [2] and Allen [5].

When compared with three chronic conditions, the total burden of RLS was greater than that of type-2 diabetes, followed by depression and OA (Table 2). The RLS sample had lower HRQoL scores than the type-2 diabetes sample by a full SD in bodily pain, and by 0.5 SD in physical functioning, vitality, social functioning and the physical component summary. The finding that RLS places an even greater burden on most HRQoL domains than type-2 diabetes is striking, as the latter has a well-documented, negative impact on QoL [1]. Compared with depression, the burden for the RLS sample was highest for bodily pain and the physical component summary. The RLS sample was also significantly higher than the depres-

sion sample on role emotional, mental health and the mental component summary. The burden of the RLS sample appeared to be most comparable with the OA sample.

In order to estimate the unique burden that RLS places on HRQoL that is independent of any co-occurring conditions, the RLS sample was adjusted for the presence of comorbidities unrelated to RLS and compared with 1998 US healthy adult general population norms. Similar to that observed for the total burden analyses (Table 2), these comparisons revealed a significant burden across all HRQoL domains measured (Table 3). However, in terms of unique burden, the largest mean score differences between the two samples were observed for bodily pain, general health perception and vitality. It is noteworthy that burden in the vitality domain was strongly associated with RLS, as sufferers often report disturbed sleeping with symptoms typically worsening at night [8, 12]. While only 11% of the US general population sample reported feeling tired all or most of the time, nearly one-third of the RLS sample indicated the same in this study.

Decreased vitality can have a marked impact on both physical and mental functioning. In the RLS sample, 76% of respondents reported some limitation in bending, kneeling or stooping, compared with 38% in the general population. Other areas where there was a sizable difference between the RLS sample and the general population were in walking several blocks (34% difference), climbing one flight of stairs (32% difference) and lifting or carrying groceries (31% difference). These results demonstrate an association between RLS and decreased daily physical functioning.

RLS was also found to be associated with significant burden to mental health and emotional functioning as measured by the SF-36. Approximately 44% of the RLS sample reported that they were a very nervous person some to all of the time, while 43% reported that they felt downhearted and blue some to all of the time. In both instances, the difference between the RLS sample and the general population was about 20%. These findings are underscored when combined with the finding that, based on the RLS sample's mean mental component summary score of 46.8, only 35% of individuals with RLS would be likely to report being happy and satisfied with their personal life, compared with 41% of the general population. In addition, about 24% of individuals with RLS would be likely to report quite a bit or a great deal of stress in daily living, compared with 20% of the general population.

Together, these findings indicate that after statistically controlling for the presence of comorbid conditions in both the REST study sample and the normative comparison population, the unique burden of RLS is even larger than was previously estimated in studies where these conditions were not controlled [2, 5, 10].

Conclusion

Overall, the unique burden that RLS places on an individuals' HRQoL is substantial, affecting both physical and mental health aspects of QoL. The RLS burden was greater than that observed for type-2 diabetes and similar to that of depression and OA.

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