White paper

Understanding patient outcomes in the real world

by Marco DiBonaventura Ph.D. and Michael Fronstin

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Data analyzed

Data are from 94,711 men interviewed in the U.S., 5EU (UK, France, Germany, Italy and Spain), Japan, China, Brazil and Russia National Health and Wellness Survey (NHWS), a cross-sectional survey representative of the adult population, conducted in 2011 or 2012. Data were weighted based on sex and age for each region. Men were classified as having ED if in the past six months they had difficulty achieving/maintaining an erection. Comparisons between patient groups were made with chi-square tests for categorical variables and ANOVA for continuous variables.

1. Disease burden may differ when comparing diagnosed and undiagnosed patients with symptomatic diseases

Disagree	Neutral	Agree
8%	4%	88%

More and more physicians, payers and patients are requesting real-world evidence of pharmaceutical treatments. The pharma industry of today understands that good real-world patient outcomes can carry as much weight as robust regulatory data, so understanding drug use beyond the clinical trial setting is critical for success. However, incorrect assumptions are sometimes made about real-world outcomes. To illustrate this, we presented three statements about outcomes and health economic burden to attendees at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 18th Annual International Meeting in New Orleans to ascertain their level of agreement and compared the results with real patient-reported data derived from Kantar Health's National Health and Wellness Survey (NHWS).

Most of the ISPOR attendees surveyed agreed that focusing only on diagnosed patients does not provide the most accurate measure of overall disease burden. Poor diagnosis rates are common in diseases with subtle symptoms and/or associated psychological stigma. For example, erectile dysfunction (ED) is highly prevalent, with on average a third of men experiencing symptoms of the disease over the preceding six-month period (see figure 1).

Although prevalence rates differ by market, most striking of all is the low presentation rate, with only 10% to 25% of men who experience ED in the emerging markets of China, Brazil and Russia willing to discuss their condition with a doctor. The higher proportion of men who discuss ED with their doctor in the major European countries (43.9%) and the U.S. (39.4%) is perhaps driven by DTC advertising in the U.S. and greater disease awareness overall. The market with the greatest self-reported prevalence, Japan, is also the one with the lowest rate of presentation – just 5.6% of men who say they experience ED discuss it with a doctor.

The difference between ED disease burden calculated from levels of diagnosis and actual disease prevalence is therefore sizable, particularly in Japan, where the societal and financial impact of the disease is likely to be significantly underestimated by both the local healthcare system and pharmaceutical manufacturers. The key message is that understanding the overall disease burden in the real world, even when accounting for patients not presenting to their physician, is critical for building a solid cost-effectiveness case for drug intervention.

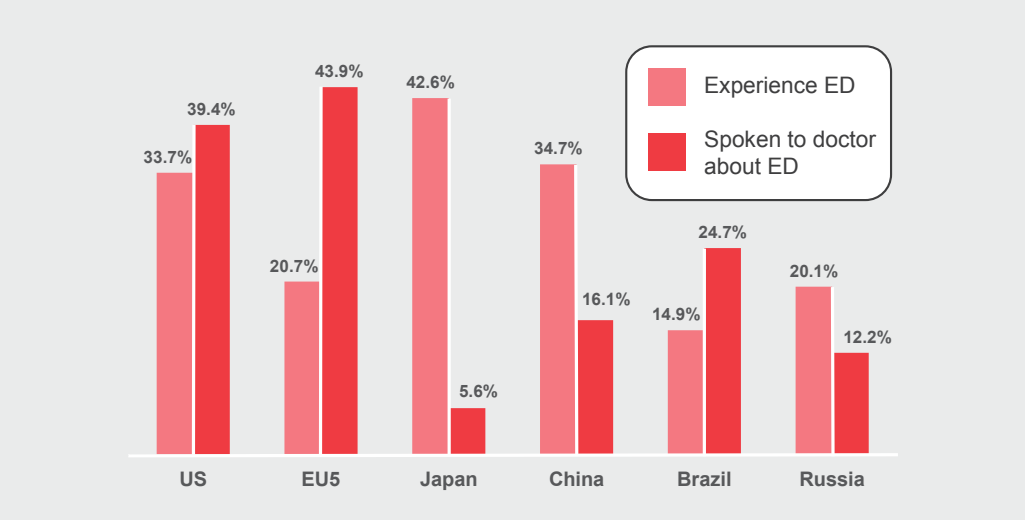


Figure 1: Prevalence of ED and percentage of sufferers who discuss the condition with their doctor across the major markets, as derived from Kantar Health's NHWS data.

Data analyzed

Data from 7,751 NHWS respondents reporting a diagnosis of cancer (any metastatic solid tumor, leukemia, lymphoma, breast, cervical, colorectal, ovarian, prostate, skin, uterine, other, small cell lung and/or non-small cell lung cancer) were used for this analysis. Those with a reported BMI greater than or equal to 30 were defined as obese, resulting in 4,860 non-obese and 2,745 obese cancer patients being analyzed, once those without BMI information were excluded. Multivariable (linear and negative binomial) generalized linear models assessed outcomes as a function of obesity, cancer diagnosis, their interaction, and sociodemographic and health behavior covariates of interest, plus Charlson Comorbidity Index (CCI) scores.

2. Health outcomes can be driven by comorbidity burden

Disagree	Neutral	Agree
0%	15%	85%

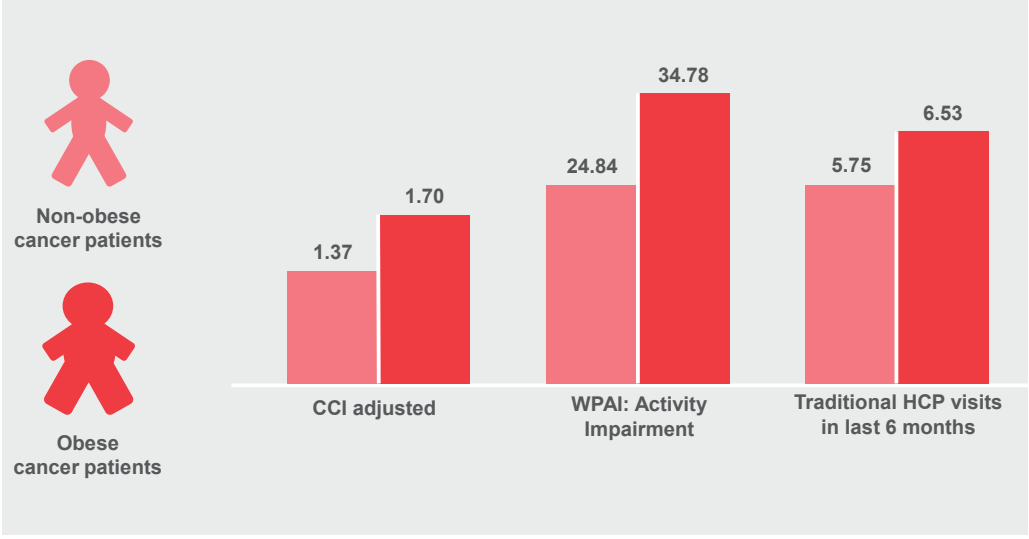
The vast majority of respondents from ISPOR agreed that health outcomes can be driven by comorbidity burden. In other words, the presence of associated disorders has a bearing on the baseline level of patient outcomes as well as treatment effectiveness.

To illustrate this point, almost 8,000 cancer patients with a variety of tumor types were classified as obese (BMI ≥30) versus non-obese. A number of metrics were assessed to directly compare non-obese and obese cancer patients: The Charlson Comorbidity Index (CCI), which provides an overall index score based on the number and severity of comorbidities; the Work Productivity and Activity Impairment (WPAI) questionnaire, which is a recognized metric for assessing the level of health-related impairment at work and during daily activities; and the number of healthcare provider visits in the last six months.

Differences were observed in all three of the above metrics between non-obese and obese cancer patients; these differences remained significant even after accounting for other variables (see figure 2). Notably, obese cancer patients reported a higher comorbidity burden, as referenced by the CCI , had a higher level of activity impairment, and visited their healthcare provider more often.

Although clinical trials often select a number of comorbidities as exclusion criteria, patients in the real world are far less homogeneous. This more complicated comorbidity profile has implications for the baseline burden experienced as well as the effectiveness of treatment. This highlights the need for pharma to really understand the comorbidity profile of their patients and how these comorbidities affect outcomes in the real world.

Figure 2: Key differences in values for the CCI adjusted score, WPAI: activity impairment score and traditional healthcare provider visits in the last six months between non-obese and obese cancer patients.



Data analyzed

Data from the 2012 U.S. National Health and Wellness Survey (NHWS) were analyzed. Patients who reported a diagnosis of leukemia, melanoma or non-small cell lung cancer (NSCLC) and reported currently using a treatment for their condition were included in the analyses (n=103). Adherence was measured using the Morisky Medication Adherence Scale (MMAS-8) modified for use in oncology. Sociodemographics, health history and health outcomes were also assessed. Descriptive analyses of adherence were conducted along with an assessment of the relationships between adherence and health outcomes.

3. More convenient therapies, e.g. orals versus non-orals, may improve health outcomes

Disagree	Neutral	Agree
4%	42%	54%

The final question divided respondents the most. While 54% agreed that more convenient therapies (e.g., oral therapies versus non-orals) may improve outcomes, 42% were undecided and 4% disagreed.

Convenient therapies could lead to improved health outcomes based on making it easier for patients to take their medications and, therefore, increasing adherence. However, increasing convenience by transitioning treatment administration from the secondary care setting to the patient's home (moving from, for example, an infusion to an oral therapy) may come with its share of consequences. Such cases place increased responsibility on the part of the patient for proper administration, which may actually adversely affect adherence and health outcomes.

Looking at NHWS data for patients who reported being treated for leukemia, melanoma or non-small cell lung cancer (NSCLC), where the standard of care is newer oral therapies, the Morisky Medication Adherence Scale (MMAS-8) can be used to assess whether they are adherent and as a predictor of health outcomes. More than two-thirds of these cancer patients were classed as non-adherent (figure 3), with significantly lower levels of mental quality of life and marginally higher rates of hospitalization (mean 0.97 versus 0.42 for adherent patients) and emergency room visits (mean of 1.18 versus 0.25 for adherent patients) over the preceding six months.

Although increasing the convenience of therapy can reasonably be expected to increase adherence, particular caution should be applied when there is a shift from a traditionally physician-administered therapy to a patient-administered one. In these cases, non-adherence may still be common issue (despite the level of added convenience) and could have some significant effects on future patient outcomes.

Conclusion

The data presented here relating to the three ISPOR survey questions represents just a small subset of the full research in each case and an even smaller subset of the overall research conducted on patient outcomes via the NHWS database at any given time. Nevertheless, they illustrate some important considerations for pharmaceutical manufacturers.

There are significant differences between the trial results observed in the clinical setting and the health outcomes of patients in the real world due to a number of demographic and sociological factors. Robust analysis of such outcomes in the real world based on real, representative patient populations is critical to delivering medicines that work for both the pharma industry and patients.

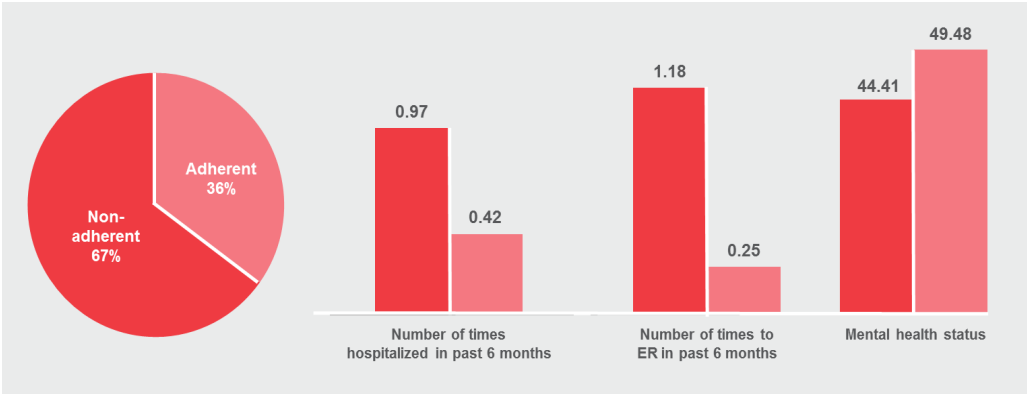


Figure 3: Degree of adherence and associated levels of hospitalization/ER visits over the last six months and mental health status for cancer patients where the standard of care is oral therapy.

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About Kantar Health

Kantar Health is a leading global healthcare consulting firm and trusted advisor to many of the world's leading pharmaceutical, biotech, and medical device and diagnostic companies. It combines evidence-based research capabilities with deep scientific, therapeutic and clinical knowledge, commercial development know-how, and brand and marketing expertise to help clients evaluate opportunities, launch products and maintain brand and market leadership.

Kantar Health deeply understands the influence of patients, payers and physicians, especially as they relate to the performance and payment of medicines and the delivery of healthcare services. Its 700+ healthcare industry specialists work across the product lifecycle, from pre-clinical development to launch, acting as catalysts to successful decision-making in life sciences and helping clients prioritize their product development and portfolio activities, differentiate their brands and drive product success post-launch.

For more information, please visit **www.kantarhealth.com**.

Data presented in this white paper was collected from Kantar Health's National Health and Wellness Survey (NHWS).

The NHWS is the largest international self-reported patient database in the healthcare industry, with annual survey responses dating back to 1998 in the US, 2000 in Europe, 2008 in Asia and 2011 in South America.

Most recently NHWS expanded its survey to patients in Brazil and Russia, continuing its presence in the emerging markets. The database provides disease specific measures that help healthcare clients size market opportunities, measure direct and indirect costs, gain insight into disease-specific segments and develop marketing and publication strategies directed at specific consumer or patient segments.

For more information on the National Health and Wellness Survey, please contact **nhws@kantarhealth.com**.

About the authors

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