## SC02

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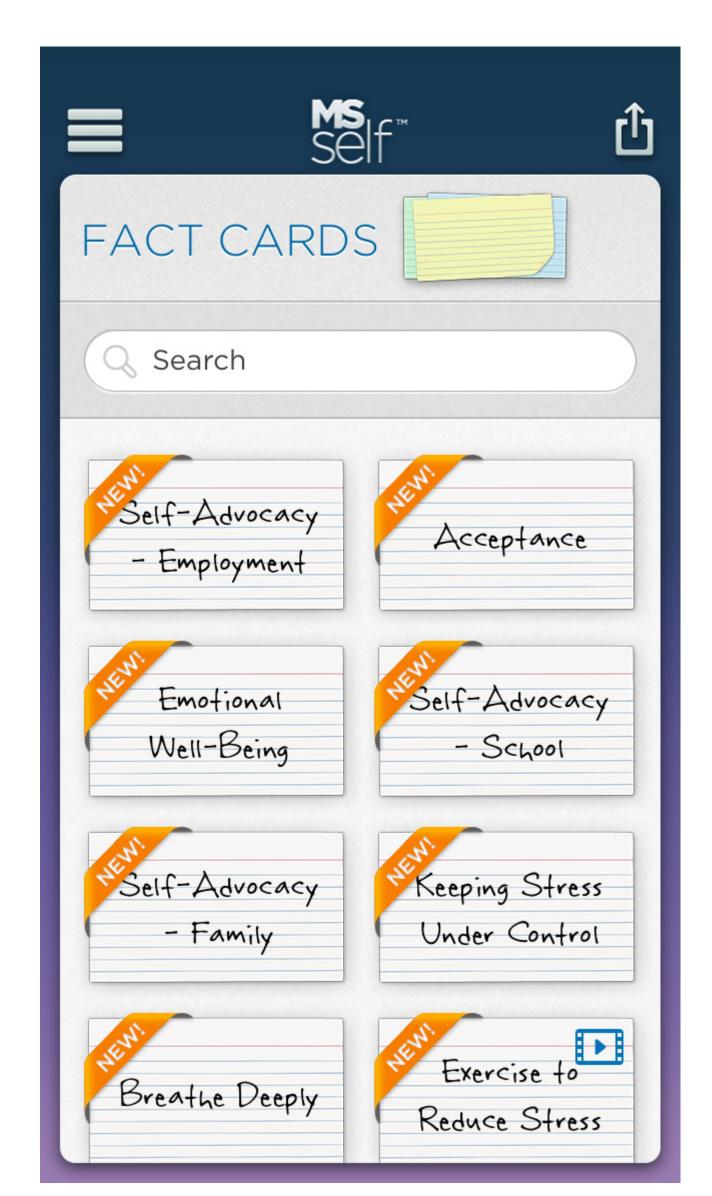
# MS self™, an Educational Mobile Application for Recording Multiple Sclerosis-Related Experiences and Symptoms

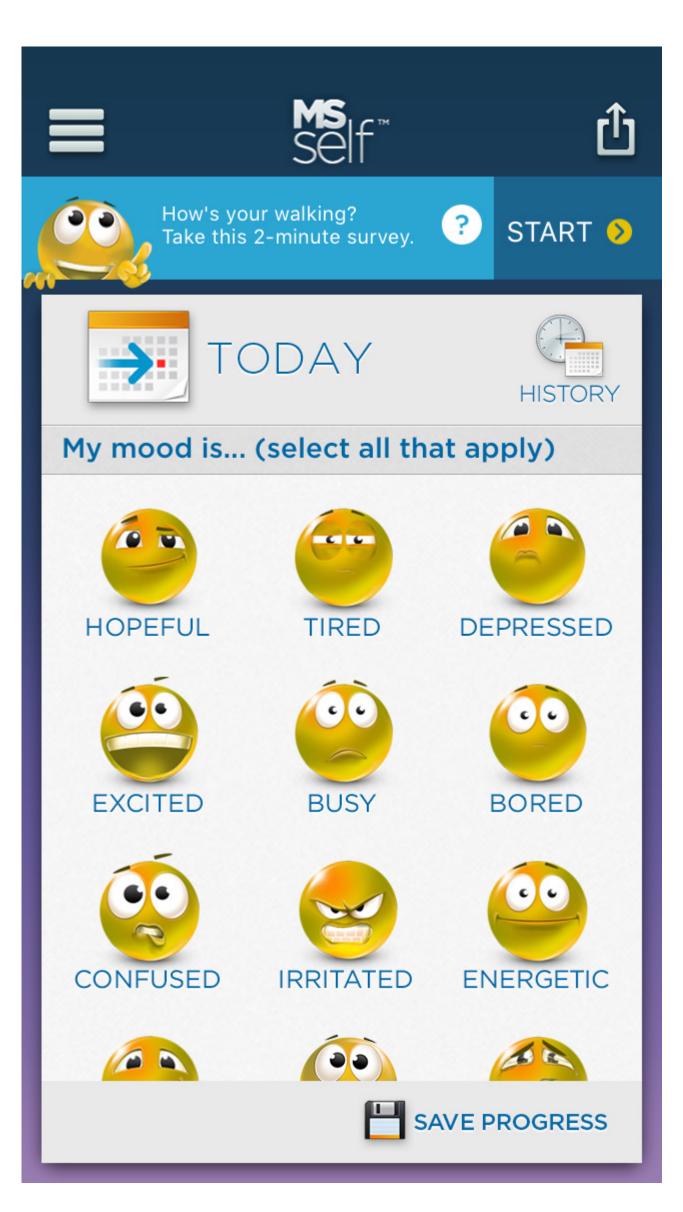
3,481 Registered Users

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### Background

- MS self<sup>TM</sup> is a Fitbit<sup>®</sup>-enabled multicomponent educational multiple sclerosis (MS) mobile application (App)
- Launched in November 2013
- Free App available for both iOS and Android
- Current software version 3.0.3





#### **Key Features**

- >50 Educational Fact Cards with searchable topics provide information and tips on managing the physical and emotional challenges of living with MS
- Users can record multiple events pertaining to MS-related symptoms such as:
- 12-item MS Walking Scale (MSWS-12)<sup>1</sup>
- Mobility impairment
- Activities of daily living (ADLs)
- Schedule reminders that can prompt users to complete an MSWS-12, or produce a status report prior to an appointment with a healthcare provider (HCP)
- Symptom tracking
- Users can track mood, symptoms, and activities
- Users can add text to describe their daily experiences
- "Emoticons" encourage users to share their emotions

- Fitbit and weather integration
   Information on weather conditions may be useful to those whose symptoms can be exacerbated by extreme temperatures
- Reporting
- Presents historical data collected from symptom tracker, Fitbit, weather, and MSWS-12
- Data can be tracked weekly,
   monthly, or as customized by user
- Enables user to visualize trends, which may help facilitate dialogue with HCPs and caregivers.
   The user can print a longitudinal ambulation assessment report from the App and send via e-mail or take to doctor appointments

## Objective

 To provide user and MS disease data reported by the App over the period January 1, 2017 to February 28, 2018

### Methods

- De-identified and aggregated data from the App for MS-related symptoms, mobility impairment, and ADLs were tracked using Google Analytics
- In addition, de-identified nonaggregated data from users who registered were also utilized
- Users entered data about their disease type and other characteristics, and recorded symptoms, mood, energy level, mobility, activity, and comments over time
- Users could also complete the MSWS-12

During the analysis period there were
 9,427 unique users with 145,332 sessions

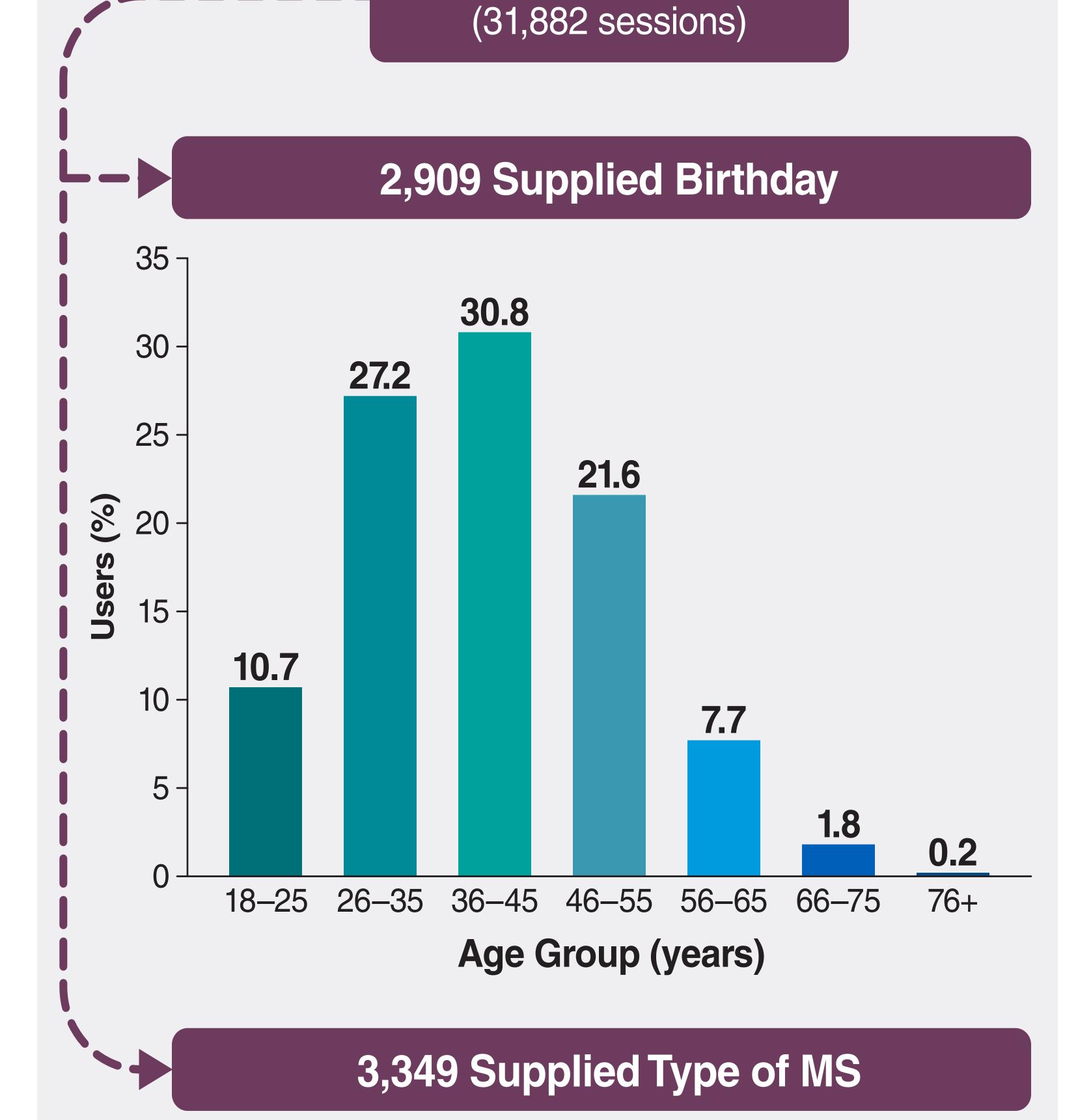
# Table 1. Overall MS self Usage as Determined by Google Analytics

Variable	January 1, 2017 to February 28, 2018
Performance totals Unique users, n Sessions, n Avg session duration	9,427 145,332 3 min 24 secs
Events, n Total MS-related symptoms Mood Activities of daily living Mobility impairment Energy levels	428,238 84,353 143,724 94,859 56,225 49,077

# **Table 2. Demographic Information From Users Who Completed ≥1 MSWS-12**

Variable	January 1, 2017 to February 28, 2018
Age mean (years)	43.40
MSWS-12 Survey Number who started an MSWS-12 Number who completed MSWS-12 Number who completed 1 MSWS-12 Number who completed >1 MSWS-12	474 354 207 147
Ethnicity, n (%) African-American Asian Hispanic White Pacific Islander Prefer not to answer	(n=203) 31 (15.3) 14 (6.9) 26 (12.8) 101 (49.8) 2 (1.0) 29 (14.3)
Employment status, n (%) Full-time Part-time Not working	(n=221) 89 (40.3) 51 (23.1) 81 (36.7)
Living situation, n (%) Alone Roommate Family members/caregiver Significant other/spouse Prefer not to answer	(n=230) 46 (20.0) 16 (7.0) 51 (22.2) 100 (43.5) 17 (7.4)
Income per annum in \$, n (%) 25,000–50,000 50,001–100,000 100,001–200,000 >200,000 Prefer not to answer	(n=220) 68 (30.9) 48 (21.8) 34 (15.5) 9 (4.1) 61 (27.7)

# Figure 1. MS self Registered User Profile (May 17, 2017–February 28, 2018)



#### 47% reported their type of MS only once

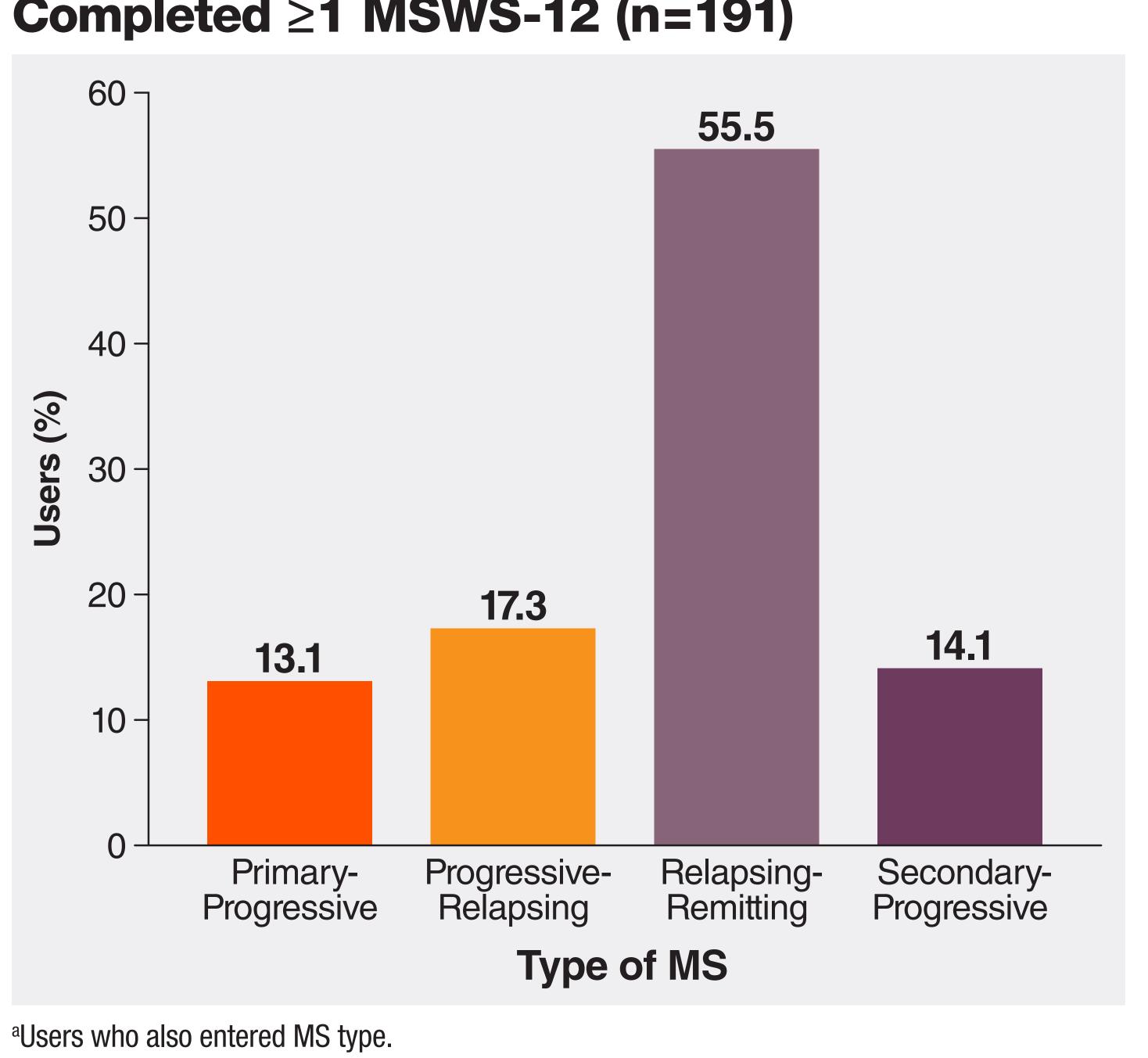
- –Of those who reported their MS type once, the majority (97%) reported relapsingremitting MS (RRMS); primary-progressive (PPMS), progressive-relapsing (PRMS), and secondary-progressive (SPMS) MS each comprised only 1% of responses
- 53% reported their MS type more than once
- -Of those who reported their MS type more than once, 38% changed their MS type from RRMS to SPMS, 34% from RRMS to PPMS, 27% from RRMS to PRMS, and 1% to other combinations not including RRMS

#### Results

**MSWS-12** 

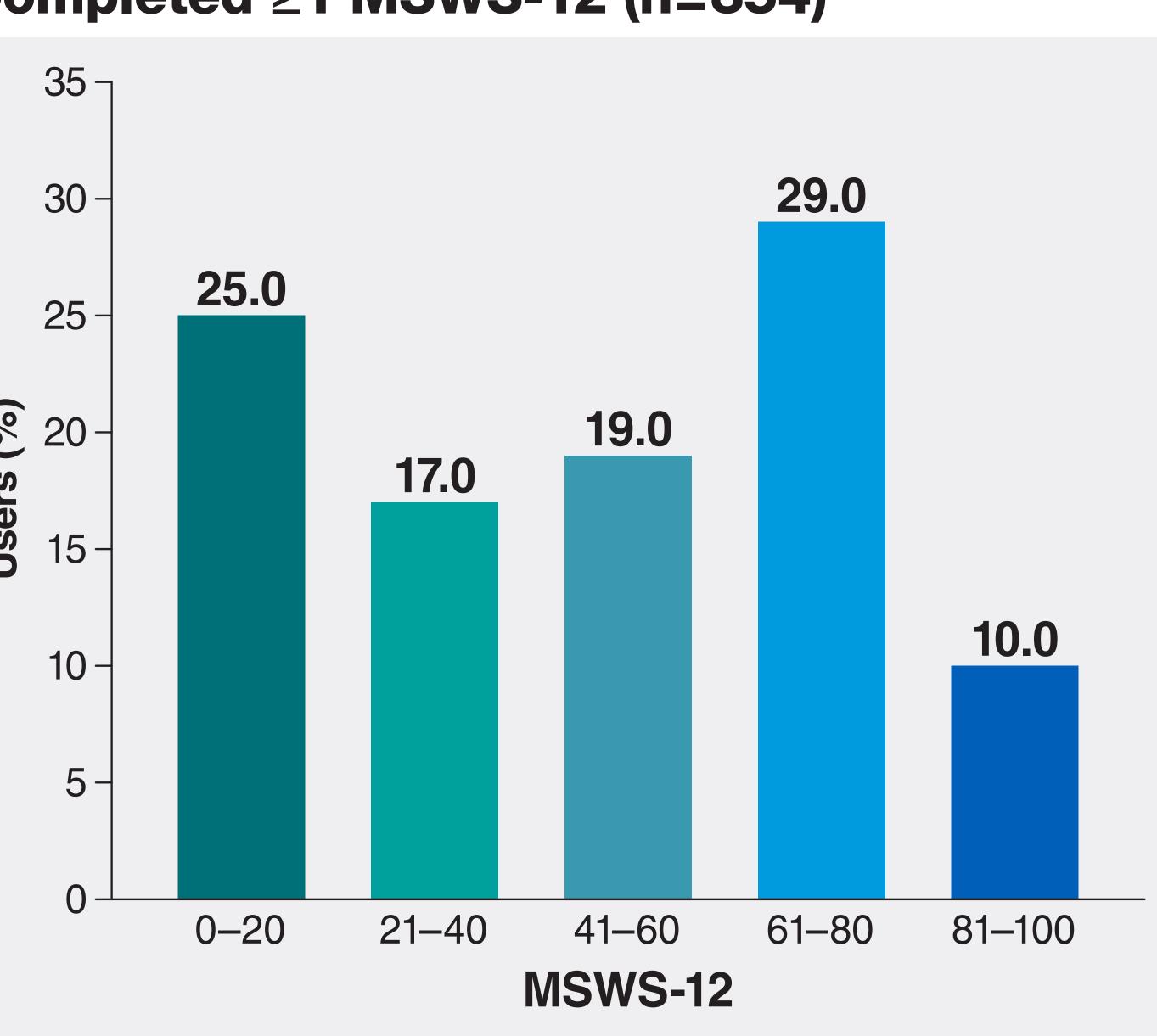
 74% (262/354) reported they have MS and 73% (191/262) reported their diagnosed type of MS

## Figure 2. Type of MS for Users<sup>a</sup> Who Completed ≥1 MSWS-12 (n=191)



- 62% (119/191) who provided type of MS completed
   1 MSWS-12 once
- 38% (72/191) who provided type of MS completed MSWS-12 more than once

Figure 3. MSWS-12 Scores for Users Who Completed ≥1 MSWS-12 (n=354)



#### Conclusions

- The captured data suggest that the App is a useful aid to record MS-related experiences and symptoms that could be helpful for improving communication between patients and HCPs
- Further analysis of the MSWS-12 and demographic data as the number of users grows may provide interesting information about the people with MS who are using the App
- Limitations: this is self-reported data and users were not required to have a confirmed diagnosis

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Reference 1. Hobart JC, et al. Neurology. 2003;60:31–36.

