The Impact of Paroxysmal Supraventricular Tachycardia on Patient's Daily Life and Quality of Life Between Episodes

Rishabh K. Sehra, MD[1], Samuel F. Sears, PhD[2], Kathryn Wood, PhD, RN[3], Anita Holz, MSN, CRNP[4], David Bharucha, MD, PhD[4], Bradi Granger, PhD[1], Rick Sherwood, MD[4], Nihar Desai, MD, MPH[5], Sean D. Pokorney, MD, MBA[1]

[1] Duke University, Durham, North Carolina, USA,; [2] East Carolina University, Greenville, NC, USA; [3]Emory University, Atlanta, GA, USA; [4]Milestone Pharmaceuticals, Charlotte, NC, USA; [5]Yale University, New Haven, CT, USA

Purpose

- Paroxysmal supraventricular tachycardia (PSVT) is a cardiac arrythmia characterized by sudden episodic tachycardia that can require acute care with symptoms including palpitations, weakness or fatigue, dizziness, syncope, shortness of breath, anxiety, and chest pain[1]
- PSVT is the second most common sustained arrhythmia with an estimated United States prevalence of 2.1 million[1]
- Prior studies report significantly higher healthcare resource use and costs in newly diagnosed PSVT patients, including higher emergency department visit and inpatient admission rates and healthcare expenditures[2,3]
- The impact of living with PSVT on a patient's quality of life (QoL) in between PSVT episodes has not been well established

Objective: To assess patient reported outcomes of the impact of living with PSVT in between PSVT episodes in a longitudinal study collected outside of a healthcare setting

Methods

Study Design and Recruitment

- Prospective, longitudinal, web-based survey study conducted in the United States and United Kingdom
- Participants were recruited through general consumer panels, arrhythmia-specific panels, and patient advocacy organizations

Survey Schedule

- **Baseline survey:** 30-minute survey, including eligibility screening, completed in February 2019
- **Weekly tracking surveys:** 5-minute surveys completed from February through December 2019
- **Closing survey:** 15-minute survey completed in December 2019

Inclusion Criteria

- Age ≥18 years.
- Self-reported diagnosis of PSVT
- Residence in the United States or United Kingdom
- History of ≥1 PSVT episode
- No history of catheter ablation at enrollment

Exclusion Criteria

- Failure to meet prespecified data-quality criteria (intended to increase confidence in the self-reported PSVT diagnosis)
- Implausible or noncredible survey responses, including:
  - Reporting multiple rare comorbidities
  - Nonsensical responses to open-ended questions
  - Suspicious or inconsistent response patterns across weekly surveys
- Undergoing catheter ablation during study follow-up

Patient-reported Data Collection

- Participants provided near–real-time information on PSVT episodes and their impact through smartphone-accessible weekly surveys
- During weeks without a PSVT episode, participants completed quality-of-life assessments, including the WHOQOL-BREF and questions addressing:
- Lifestyle changes and avoidance behaviors included emotional symptoms and anxiety

Figure 1. Patient Screening and Data Collection

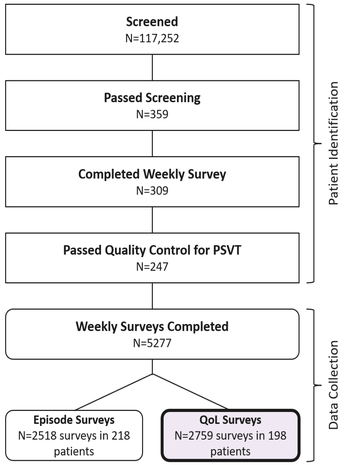


Table 1. Number of Times Each Patient (N=247) Completed the Quality of Life Survey

Times Completing QOL Survey	PSVT Patients (%)
10+	47
5-9	10
2-4	13
1	10
Never	19

Results

Table 2. PSVT Patient Demographics and Clinical Characteristics

	PSVT Patients (N=247)
Female, N (%)	177 (72%)
Mean age, year	52
Race/Ethnicity	
White	227 (92%)
Black	7 (3%)
Hispanic	7 (3%)
Hypertension	99 (40%)
Atrial Fibrillation	42 (17%)
Diabetes	27 (11%)
Congestive Heart Failure	17 (7%)
No Comorbidities	104 (42%)

- The population was predominantly middle-aged and female, with a substantial comorbidity burden (Table 2)

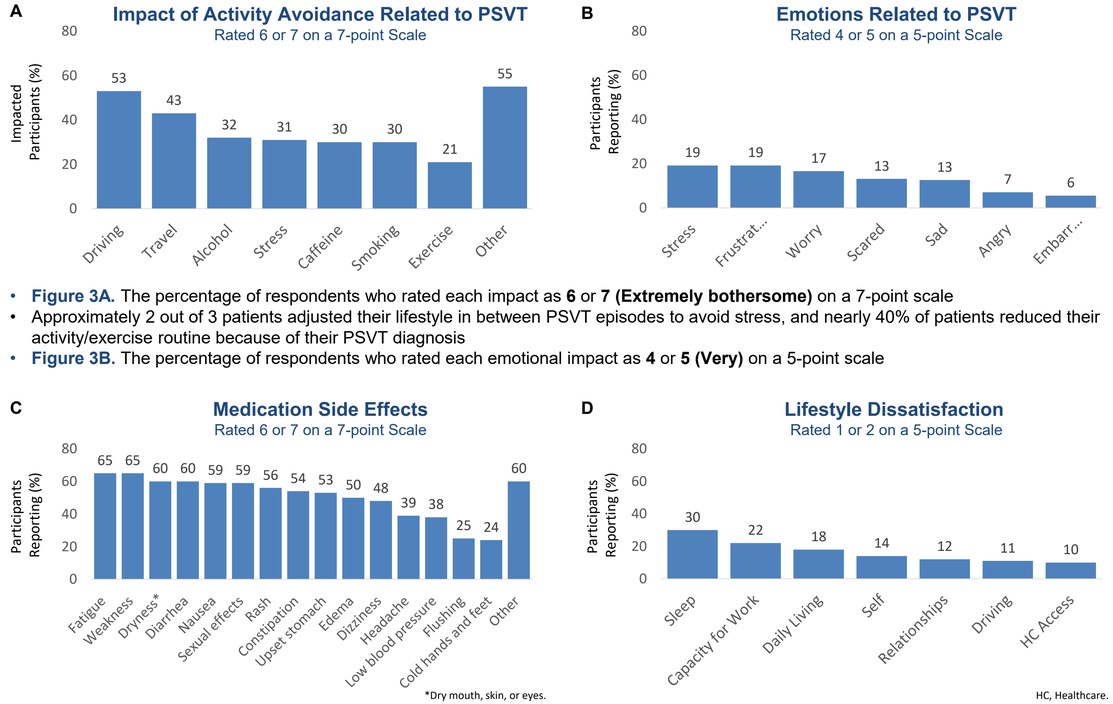
Table 3. Reported Anxiety Between PSVT Episodes

Average Self-Reported Anxiety Due to PSVT	Extremely Anxious at Some Point During Study*	Reported a Maximum Anxiety Score at Least Once†
3.1 of 7	**26%**	**16%**

*Rated at least **6** or **7 (Extremely)** on a 7-point scale; † Rated 7 of 7.

- Anxiety persisted between PSVT episodes, with a notable subset of patients reporting periods of extreme anxiety* during the study (Table 3)

Figure 3. Patient Reported Quality of Life Impact Between PSVT Episodes



- **Figure 3A.** The percentage of respondents who rated each impact as **6** or **7 (Extremely bothersome)** on a 7-point scale
- Approximately 2 out of 3 patients adjusted their lifestyle in between PSVT episodes to avoid stress, and nearly 40% of patients reduced their activity/exercise routine because of their PSVT diagnosis
- **Figure 3B.** The percentage of respondents who rated each emotional impact as **4** or **5 (Very)** on a 5-point scale
- **Figure 3C.** The percentage of respondents who rated each impact as **6** or **7 (Extremely bothersome)** on a 7-point scale
- **Figure 3D.** The percentage of respondents who rated each lifestyle satisfaction as **1 (Very dissatisfied)** or **2** on a 5-point scale
- 73% of patients reported being impacted by daytime activity interruption between PSVT episodes

Conclusions

- PSVT impacts patients QoL, imposing a substantial burden between episodes, affecting anxiety, daily activities, sleep, and work
- Medication side effects and activity avoidance further reduce QoL, highlighting an unmet treatment need
- This data highlights the fact that the burden of PSVT extends beyond the acute, symptomatic episodes of PSVT
- Future research is needed to evaluate the impact on QoL of patient's having an at home, self-administered treatment to terminate episodes of SVT, such as recently approved etripamil nasal spray[4]

Limitations

- The reliance on self-reported symptom severity by patients presents a limitation due to the potential for inherent biases or inaccuracies
- Patients in this study had access to the internet and healthcare; thus, these findings may not be generalizable to certain underserved populations with PSVT
- The data underwent panel review, during which inaccurate responses and treatment approaches were removed, resulting in the exclusion of potentially relevant data

References

1. Rehorn M, Sacks NC, Emden MR, et. al. Prevalence and incidence of patients with paroxysmal supraventricular tachycardia in the United States. J Cardiovasc Electrophysiol. 2021 Aug;32(8):2199-2206. doi: 10.1111/jce.15109. Epub 2021 Jun 14. PMID: 34028109.
2. Sacks NC, Cyr PL, Preib MT, et al. Healthcare Resource Use and Expenditures in Patients Newly Diagnosed With Paroxysmal Supraventricular Tachycardia. Am J Cardiol. 2020 Jan 15;125(2):215-221. doi: 10.1016/j.amjcard.2019.10.015.
3. Chew DS, Sacks NC, Emden MR, et al. Trends in health care resource use and expenditures in patients with newly diagnosed paroxysmal supraventricular tachycardia in the United States. Am Heart J. 2021 Mar;233:132-140. doi: 10.1016/j.ahj.2020.12.012.
4. Villines TC, Singh N, Lacharite-Roberge AS, Hsu JC, Rafii F, Blood AJ. Paroxysmal Supraventricular Tachycardia Treatment: Evaluating the Evidence for Established and Newly Approved Options. JACC Adv 2026;5:103016.

Funding

Funding for the research was provided from Milestone Pharmaceuticals