

LETTER TO EDITOR

Recreation use of phosphodiesterase type 5 inhibitors, the other side of erectile dysfunction

Giovanni Maria Fusco¹, Luigi Cirillo¹, Francesco Mastrangelo¹, Francesco Romano¹, Ernesto di Mauro¹, Gianluigi Cacace¹, Gianluca Spena¹, Annamaria Iannicelli², Corrado Aniello Franzese³, Vincenzo Mirone¹, Roberto La Rocca¹, Luigi Napolitano¹

¹ Department of Neurosciences, Reproductive Sciences and Odontostomatology, Urology Unit, University of Naples "Federico II", Naples, Italy;

² Department of Translational Medical Sciences, University of Naples "Federico II", Naples, Italy;

³ ASL Napoli 3 Sud, Naples, Italy.

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To the Editor,

In 1998 Sildenafil was approved by the Food and Drug Administration as first line therapy for erectile dysfunction. Since then, *phosphodiesterase type 5 inhibitors* (PDE5i) represent the first-line treatment of *erectile dysfunction* (ED), improving physiological erectile function, sexual orgasmic function, psychological self-esteem, couples' relationship, and quality of life (1). Sildenafil represents the most used recreational drugs (2, 3). This could be due to its popularity/familiarity, the presence of more than 30 generic sildenafil and to the significantly lower costs compared to other PDE5i as well as tadalafil (2). The population of PDE5i users is different in terms of demographics, sexual behaviors, attitudes in general/sexual health, and demands for ED treatments (4). Nowadays PDE5i are very popular drugs and one of the most important problems is their recreational use (5). Mostly young men bypassed *health care prescriptions* (HCP) and obtained these drugs through uncontrolled sources, on the internet market (6, 7). There are several risks related to recreational use of PDE5i: a certain portion of drugs available on the internet are contaminated by counterfeits and unapproved generics (1, 8). *Alshahrani et al.* reported that in Saudi Arabia population, the most important reason in using PDE5i for recreational use is curiosity (38.5%) followed by enhancing self-confidence (25.6%), increasing erection duration (10.3%) and improving ejaculation problems (5.1%). All these people bought the PDE5i from drug stores (73.9%), without a medical prescription (9). Similar data were reported by *Attia et al.* in Egyptian males: in 58.35% of cases PDE5i were used for pleasure, followed by increasing intercourse duration/frequency (15.6%). In 62% of cases Egyptian males obtained them from friends, relatives, and colleagues (62%) or by themselves (25%) or from pharmacists (6.7%), and only 5.4% after medical consultation (1, 10). *Bechara et al.* reported that 21.5% of healthy men between 18 and 30 years old used PDE5i as a recreational drug, mostly associated with alcohol or other drugs as well as illicit drugs, and psychotropic medications. This could explain the high incidence of adverse events, mainly related to vasodilator effects (6, 11) with the use of the cannabis, an inhibitor of the cytochrome P450 3A4 hepatic microsomal isoenzyme that is involved into PDE5i metabolism (12, 13). *Kimura et al.* reported that 45.4% of Japanese men bypassed HCP interaction to obtain PDE5i, 23.4% of men obtained it from friends and 22.0% obtained it via the Internet (8). *Korkes et al.* reported a recreational use in 9% of young men, although they considered themselves with perfect erectile function. Of these, 46.7% had used PDE5i more than three times, and 71.4% had mixed them with alcohol (7). *Harte et al.* reported the same effect in users and nonusers, with a lower erectile confidence and overall satisfaction in the first group (14). In this scenario it should be necessary to provide more education with the aim to decrease the number of PDE5i users without prior HCP consultation (7, 15). Further work on the risk or potential health problems in such conditions is encouraged to improving the information in the general population, creating a collaborative effort between pharmacists, health professionals, and policy makers is necessary to avoid selling medication without a medical prescription and to give adequate and scientific information regarding PDE5i use and misuse.

REFERENCES

1. Attia AA, Abdel-Hameed AKS, Amer MAEM, et al. Study of the prevalence and patterns of phosphodiesterase type 5 inhibitor use among sexually active Egyptian males: A National Cross-sectional Survey. *Andrologia*. 2019; 51:e13364.
2. Huang SA, Lie JD. Phosphodiesterase-5 (PDE5) Inhibitors In the Management of Erectile Dysfunction. *P T*. 2013; 38:407-19.

3. Atsbeha BW, Kebede BT, Birhanu BS, et al. *The Weekend Drug; Recreational Use of Sildenafil Citrate and Concomitant Factors: A Cross-Sectional Study.* *Front Med (Lausanne).* 2021; 8:665247.
4. Mulhall JP, Hassan TA, Rienow J. *Sexual habits of men with ED who take phosphodiesterase 5 inhibitors: a survey conducted in 7 countries.* *Int J Clin Pract.* 2018; 72:e13074.
5. Cirillo L, Fusco GM, Di Bello F, et al. *Sexual dysfunction: Time for a multidisciplinary approach?* *Arch Ital Urol Androl.* 2023; 95:11236.
6. Bechara A, Casabé A, De Bonis W, et al. *Recreational Use of Phosphodiesterase Type 5 Inhibitors by Healthy Young Men.* *J Sex Med.* 2010; 7:3736-42.
7. Korke F, Costa-Matos A, Gasperini R, et al. *Recreational Use of PDE5 Inhibitors by Young Healthy Men: Recognizing This Issue Among Medical Students.* *J Sex Med.* 2008; 5:2414-2418.
8. Kimura M, Shimura S, Kobayashi H, et al. *Profiling Characteristics of Men Who Use Phosphodiesterase Type 5 Inhibitors Based on Obtaining Patterns: Data from the Nationwide Japanese Population.* *J Sex Med* 2012; 9:1649-1658.
9. Alshahrani S, Ahmed AF, Gabr AH, Al Ansari A, El-Jeky M, Elbadry MS. *Phosphodiesterase type 5 inhibitors: Irrational use in Saudi Arabia.* *Arab Journal of Urology.* 2016; 14:94-100.
10. Mirone V, Napolitano L, D'Emmanuele di Villa Bianca R, et al. *A new original nutraceutical formulation ameliorates the effect of Tadalafil on clinical score and cGMP accumulation.* *Arch Ital Urol Androl.* 2021; 93:221-226.
11. Ahmed AF, Alshahrani S, Morgan A, et al. *Demographics and sexual characteristics of sex-enhancing medication users: Study of a web-based cross-sectional sample of sexually active men.* *Arab Journal of Urology.* 2017; 15:366-371.
12. Napolitano L, Fusco GM, Cirillo L, et al. *Erectile dysfunction and mobile phone applications: Quality, content and adherence to European Association guidelines on male sexual dysfunction.* *Arch Ital Urol Androl.* 2022; 94:211-216.
13. Schnetzler G, Banks I, Kirby M, et al. *Original Research—ED Pharmacotherapy: Characteristics, Behaviors, and Attitudes of Men Bypassing the Healthcare System When Obtaining Phosphodiesterase Type 5 Inhibitors.* *J Sex Med* 2010; 7:1237-1246.
14. Harte CB, Meston CM. *Recreational Use of Erectile Dysfunction Medications and Its Adverse Effects on Erectile Function in Young Healthy Men: The Mediating Role of Confidence in Erectile Ability.* *J Sex Med* 2012; 9:1852-1859.
15. Napolitano L, Cirillo L, Fusco GM, et al. *Natural treatments for erectile dysfunction: A focus on mobile health applications.* *Arch Ital Urol Androl.* 2022; 94:373-374.

Correspondence

Giovanni Maria Fusco, MD
giom.fusco@gmail.com

Luigi Cirillo, MD
cirilloluigi22@gmail.com

Francesco Mastrangelo, MD
f.mastrangelo91@gmail.com

Francesco Romano, MD
romanofrancesco92@libero.it

Gianluca Spina, MD
spina.dr@gmail.com

Ernesto Di Mauro, MD
ernesto.dimauro@unina.it

Gianluigi Cacace, MD
Naples cacace.gianlu@gmail.com

Vincenzo Mirone, MD
mirone@unina.it

Roberto La Rocca, MD
robertolarocca87@gmail.com

Luigi Napolitano, MD
dr.luiginapolitano@gmail.com

Department of Neurosciences, Reproductive Sciences and Odontostomatology,
Urology Unit, University of Naples "Federico II", Naples, Italy

Annamaria Iannicelli, MD
annamaria.iannicelli@unina.it
Department of Translational Medical Sciences, University of Naples "Federico II",
Via Pansini 5, 80131, Naples, Italy

Corrado Aniello Franzese, MD
corradofranzese@libero.it
ASL Napoli 3 Sud, Naples, Italy

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