

Cross-Sectional Analysis of the Health Product E-Commerce Market in Singapore

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Abstract : Introduction: The size of Singapore's online health product (HP) market (e-commerce) is largely unknown. However, it is recognized that a large majority comes from overseas and thus, unregulated. As buying HP from unauthorized sources significantly compromises public health safety, understanding e-commerce users' demographics and their perceptions on online HP purchasing becomes a pivotal first step to form a basis for recommendations in Singapore's pharmacovigilance efforts. Objective: To assess the prevalence of online HP purchasing behaviour among Singaporean e-commerce users. Methodology: This is a cross-sectional study targeting Singaporean e-commerce users recruited from various local websites and online forums. Participants were not randomized into study arms but instead stratified by random sampling method based on participants' age. A self-administered anonymous questionnaire was used to explore participants' demographics, online HP purchasing behaviour, knowledge and attitude. The association of different variables with online HP purchasing behaviour was analysed using logistic regression statistics. Main outcome measures: Prevalence of HP e-commerce users in Singapore (%) and variables that contribute to the prevalence (adjusted prevalent ratio). Results: The study recruited 372 complete and valid responses. The prevalence of online HP consumers among e-commerce users in Singapore is estimated to be 55.9% (1.7 million consumers). Online purchasing of complementary HP (46.9%) was the most prevalent, followed by medical devices (21.6%) and Western medicine (20.5%). Multivariate analysis showed that age is an independent variable that correlates with the likelihood of buying HP online. The prevalence of HP e-commerce users is highest in the 35-44 age group (64.1%) and lowest among the 16-24 age group (36.4%). The most bought HP through the internet are vitamins and minerals (21.5%), non-herbal (15.9%), herbal (13.9%), weight loss (8.7%) and sports (8.4%) supplements. While the top 3 products are distributed equally between the genders, there is a skew towards female respondents (12.4% in females vs. 4.9% in males) for weight loss supplements and towards males (13.2% in males vs. 3.7% in females) for sports supplements. Even though online consumers are in the younger age brackets, our study found that up to 72.0% of HP bought online are bought for others (buyer's family and/or friends). Multivariate analysis showed a statistically significant association between purchasing HP through online means and the perceptions that 'internet is safe' (adjusted Prevalence Ratio=1.15, CI 1.03-1.28), 'buying HP online is time saving' (PR=1.17, CI 1.01-1.36), and 'recognition of HP brand' (PR=1.21 CI 1.06-1.40). Conclusions: This study has provided prevalence data for online HP market in Singapore, and has allowed the country's regulatory body to formulate a targeted pharmacovigilance approach to this growing problem.

Keywords : e-commerce, pharmaceuticals, pharmacovigilance, Singapore

Conference Title : ICPDS 2017 : International Conference on Pharmacovigilance and Drug Safety

Conference Location : London, United Kingdom

Conference Dates : May 25-26, 2017