HEALTH AND e-PHARMACIES IN THE COVID AGE. NEW ROLES AND DIGITAL CHALLENGES FOR THE PHARMACIST[1]

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Abstract: *The study discusses the potential of e-Pharmacies and the new digital skills of pharmacists in the aftermath of the Sars-Cov2 pandemic. From this perspective, a sociological analysis of the digital role-set of pharmacists is developed, in order to highlight the opportunities and risks of the spreading of online pharmacies and their potential contribution to the delivery of new digital services for addressin Covid-1*9. *The paper ends with some considerations on the importance of the sociological studies of "e-pharmacy encounters" in the current phase of Covid Age in Italy.*

Key words: *e-Pharmacy, Sars-Cov2, pharmacists, digital role-set, risks and opportunities, Italy*

1. Introduction

The spread of online pharmacies (Yang et al., 2001; Savensky, 2018; Sugiura, 2018) seems to herald a new web-mediated social relationship among pharmacists, health professionals, and citizens-users. In fact, in the digital society, thanks to the new digital means, pharmacists continue transforming a commodity into a product which is useful for people's health (medicines); this "transformation" is carried out also on the basis of the reinterpretation of users-patients' perceptions. Consider, for example, the often uncontrolled proliferation of nutraceutical products on the web or unlikely diagnostic techniques and anti-Coronavirus drugs. In this respect, the use of online drug purchases belongs to the broader process of medicalization of daily life. More precisely, it has to do with the pharmacologization of self-care and self-help (Traulsen *et al.*, 2019). This connection is even more important in the Sars-Cov2 era where pharmacists (individuals) and pharmacies (shops) are still the main reference point for those patients who look for individual protection devices (such as masks, disinfectants etc.), information and medicines

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[1] The essay is the result of a common project. However, Guzzo wrote the paragraphs 2,3,4, Cersosimo parr.1,5.

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to counteract Covid-19. We will focus on the contribution provided by pharmacists and on/offline pharmacies in the management of the Coronavirus pandemic, starting from the various types of e-Pharmaceutical care scattered all over Europe.

2. Methodology

This study about the role of cyber-pharmacies in the era of Sars-Cov2 is mainly based on the analysis of the topic in the up-to-date scientific literature available in primary pharmacy journals (mainly, Research in Social and Administrative Pharmacy,) and Digital Repositories (i.e.: Cochrane Library, PubMed, ResearchGate, and Google Scholar). The study focuses on processes of identification of needs, prioritization, planning, organization, monitoring, evaluation and development of digital pharmaceutical services and pharmacists' expertise for the management of coronavirus emergency. Obviously the literature selected is still at the embryo stage. Through the study of the subject we can identify not only the key features of digital pharmacies but also the risk -opportunity balance of the new role-set that the community pharmacist experimented in the Covid-19 tsunami as a sort of *digital pharmacy encounter.*

3. Unraveling on-line pharmacies and e-Pharmaceutical Care

We should primarily make a distinction between *online-web-pharmacy*[4] (stricto sensu) and *e-Pharmacy* (in broader terms) as different forms of *e-Pharmaceutical Care* in terms of a new, integrated and digital approach to the management of off/on-line services provided by the network of pharmacies to end-users within the framework of national healthcare systems. There are at least three types of online pharmacies: 1) independent internet companies with no physical shop for consumers to visit; 2) click and mortar shops, i.e. online branches of a large chain of pharmacies that have a "real" window for their products[5]; and 3) independent neighborhood pharmacies that have created networks and developed websites to represent themselves (Chaturvedi *et al.*, 2011, p. 147). If on side online pharmacies have widened the possibility for citizens to retrieve information quickly and buy drugs at lower prices, on the other they have caused lower accuracy in diagnoses and an increase in the risk of counterfeited medicines and wrong diagnoses. They also pose ethical dilemmas such as the safety of the patient/buyer and the drugs they need to purchase and the suitability of the rules and regulations online pharmacies have to comply with (Table 1).

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[4] «On line pharmacy, internet pharmacy or mail order pharmacy is a pharmacy that operates over the internet and sends orders to customers through mail or shipping companies» (Wikpedia). On the issues and perspective of web pharmacies, see Crawford (2003), Felkey and Fox (200); Bessell *et al.* (2002); West and Szeinbach (2002); Green *et al.* (2008); Griffith *et al.* (2012); Bell *et al.* (2014).

[5] These partnerships allow patients to renovate medical prescriptions through Websites, and offer customer the possibility to withdraw their drugs at a local branch of the pharmacy or to receive it by post (Gallagher and Colaizzi 2000).

Online pharmacies risks and opportunities Table 1

Opportunities	Risks
Available 24 h a day, 7 days a week	May bypass the pharmacists/patients' relationship
Less perception of intimidations when buying embarrassing or sensitive drugs	Pharmacists not always immediately available online to answer important questions clients may have
Possibility to check pharmaceuticals profile online	Concerns about privacy
Easy price comparisons with searchable database	Concerns about the security of financial information transmitted
Drugs directly delivered to patient's home through standard or special mail	Issues about the integrity of drugs shipped
Pharmaceuticals availability to customers with physical or other disabilities that hinder retail support	Issues about the quality of drug information provided

Source: Vagnozzi, 2015b.

According to Vagnozzi (2011,2015a, 2015b) online pharmacies could evolve towards Smart-Pharmacies with a double level structure (multi-channel and prompt mobility) which requires «a very strong interaction between physical shop, virtual shop, mobile devices, digital signage and Social Media» (Vagnozzi 2015, p.11) (Figure 1) in the perspective of pharmaceutical digital social media marketing (Schram, 2014).
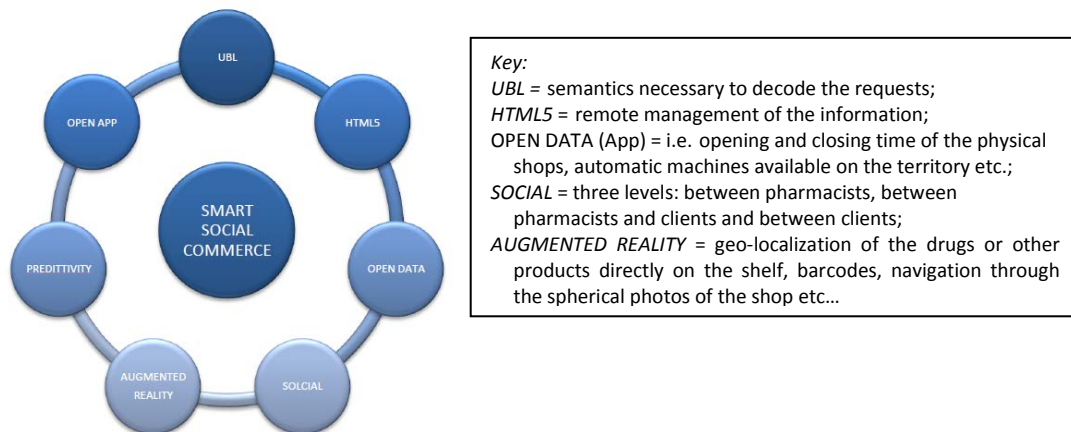

Fig. 1. *Online pharmacy: risks and opportunities*
Source: Vagnozzi 2015, p.11.

In the case of e-Pharmacy, pharmacies have become «a center for healthcare services (Cipolla and Maturo, 1998, 2001; Pacenti, Nadin and Salemme, 2011), and the first link of healthcare providing services» (Maturo, 2005, p.328) which deals with and manages the social risks «related to the control over health and disease spreading» (Cipolla and Maturo, 2001, p. 117) such as in the case of the Covid-19 pandemic. The digital pharmacy of services (Guzzo, 2020) is therefore not only a digital extension of the physical shop oriented towards social media marketing (Schram, 2014). The social pharmacy (Sorensen *et al.*, 2003) of digital

services is above all a new perspective of the *Pharmaceutical care[6]*, which combines the full inclusion of online pharmacies in the network of the services provided by national healthcare systems, professional skills and competencies of pharmacists (dispensatory skills: pharmacological competencies, support to therapeutic adherence, and non-dispensatory skills: cognitive, communicative, and digital skills, along with the monitoring and surveillance of infections and pandemics), service innovation and new web-based technologies[7].

4. Pharmacist Competencies, Roles and Digital/in Presence Services in the Era of Coronavirus

E-pharmacies require pharmacists to possess 5 different skills (cognitive, communicative, healthcare, educational and epidemiologic surveillance skills) and it provides several types of digital services in the framework of e-Pharmaceutical Care: Tele-pharmacy, e-prescribing (distance prescription services with dematerialized prescriptions), e-dispensing (distance delivery even with drones), remote diagnosis and pharmaceutics[8]. It is a systemic and systematic assistance of patients oriented towards the prevention and therapeutic adherence Online pharmacies play the role of hubs and spoke models, above all in the UK, (Elvidge, 2016) where «a central 'hub' dispenses medication from an electronic prescription which is then delivered to the pharmacy 'spoke' for collection by the consumer; currently, this can only be undertaken within pharmacy chains or large groups which belong to the same legal entity» (Spinks *et al.* 2017, p.396).

Pharmacists can play their «trust diffusing role» for their patients, thanks to web-based instruments such as blogs, websites, Apps, tele-medicine and tele-pharmacy services (Cipolla and Maturo, 2011). With doctors, nurses and paramedics physically present in emergency rooms, isolation wards and quarantine centers, pharmacist played a role of paramount importance also in terms of emergency management of Covid-19 outbreaks, and Coronavirus infection prevention (i.e: vaccination in pharmacy as recently in Italy). They also eased distress by providing triaging and basic consultations via Telemedicine, thus taking the burden off the doctors and health system. Several authors have provided their contribution in the recent debate focusing on the management of Covid-19 emergency and the role of online pharmacies (Chaturvedi *et al.,* 2011 Araújo *et al.,* 2019) of e-Pharmacies (Felkey and Fox, 2001; Bessel *et al.* 2002; Guzzo, 2020; Hattinga *et al.* 2020; Rijcken, 2019), of the new digital set-role of pharmacists (Al-Quteimat and Amer., 2021; Basheti *et al.* 2020; Bukkari *et al.*2020; Cabas *et al.*,2021; Cooper ,2020; Hedima *et al.*, 2020; Nadeem *et al.*, 2020; Nazar and Nazar, 2020; Sum and Ow, 2020) as well as of social media and mobile

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[6] Hepler and Strand (1990) *"Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life"*. See also Cipolle, Strand and Morley (1998), Hughes et al. (2010).

[7] E-Pharmacies make use of a set of technological instruments (such as tele-pharmacies, integrated systems of pharmacies and automatic medicine distribution systems) that have profoundly changed pharmaceutical practice above all in Anglo Saxon and Scandinavian countries (West and Szeinbach, 2001). Tele-pharmacy is a system that provides medicines, information on drugs and pharmaceutical assistance with the support of video-conference technology, above all when patients and pharmacist are geographically or physically separated, such as in the case of Coronavirus lockdown. There are several tele-pharmacy services available: patients' database management, therapeutic adherence control, inventory management and management of accounting and regulatory documents, and e-pharma counselling with the support of a virtual operator (AI) or in person (pharmacists with digital skills). As for the use of social media in pharmacies, see Clawson *et al.* (2013), Bell *et al.* (2014) Grindroid *et al.* (2014)

phones (Clawson *et al.*, 2013; Benetoli *et al.*, 2015). In this perspective (see Table 2) pharmacists have become: 1) providers of the stable supply of key medicines; 2) "information hubs" on the infection being a point of first contact; 3) responsible for early diagnoses, identification and management of potential cases of COVID-19 with the consequent referral of patients to healthcare facilities; 4) key actors in the implementation of government programs of public/private partnerships aimed at the distribution of protective equipment (masks, disinfectant gels, gloves and oxygen therapy) (Ung, 2020, p.583). However, this implies considerable risks for pharmacy websites in terms of drugs counterfeiting and disguised sale of potentially dangerous medicines (ISS Group guidelines on Covid-19) as well as of cyber-attacks (Kuema, 2011), and privacy violation (Crawford, 2003). In fact, the judicial authority in the UK has recently sentenced a large chain of online pharmacies for illegal sale of products to third parties and of (sensitive and personal) data of their patients without previous authorization by the customers themselves.

Pharmacist role-set in disaster management such as Covid-19   Table 2

Roles	Activities
Patient manager	-collaborating on medication management; -monitoring disease progression; - engaging in one-on-one patient counseling; -educating the public about different therapies; - tele-pharmacy services
Response integrator	-ensuring the appropriate deployment of drugs; - developing and maintaining first-aid skills; -assisting in patient triage and cardiopulmonary resuscitation (CPR); - supporting campaign against domestic violence -hot line numbers for phone-web consultation
Pharmaceutical supplier (main role)	- selecting therapies for stockpiles and inventories; - maintaining an effective system of distribution and control; - compiling patient records. - online distribution of Covid-19 vaccines; - supplying oxygen therapies; - home drug delivery.

Source: adapted from Nazar and Nazar, 2020, p.91.

5. Final Remarks and some Considerations on Italy

   The disruptive chaos brought about by the Covid-19 emergency in pharmacies has led to the worsening of the «technological shock» (Sprinks *et al.*, 2017; Cooper, 2020) caused by the impact of the "hub & spoke" model of online pharmacies on the role of intermediation traditionally played by pharmacists. In fact, this has increased «the possibility that a medicine can be directly sent to patients without the traditional pharmacist involvement» (Cooper 2020, p.205). Moreover, the COVID-19 emergency fostered a greater involvement of pharmacists in healthcare provision services, which moved from more traditional and consolidated roles (such as the prevention of smoking habits or obesity, controlled distribution of flu vaccines and of oxygen)[9] to the more recent epidemiological

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[9] Caregivers, decision-makers, communicator, managers, life-long learners, teachers and leaders are the traditional roles of pharmacists introduced by the WHO in 2000 and later transposed by the International

collaboration (Covid-19 monitoring and surveillance). This diversification of roles, that responds to a recent need for adaptation to the different post-pandemic scenario, is not negative (Sprinks *et al.* 2017)[10]. However, some sociologists[11] maintain that the widening of the digital role-set of traditional municipal pharmacists might jeopardize their authority, status and professional safety and security in the post-Covid19 period, if no suitable control is carried out by healthcare institutions and professional bodies.

In conclusion, the tremendous efforts of pharmacists all over Europe to counteract Covid-19 indicate that action should be taken in two different fields. First of all, their salary position should be improved; in Italy, in fact, proletarization of pharmacies' staff is spreading quickly (mainly tertiary educated women employed in pharmacies). Secondly, and no less important, scientific research should be carried out on the expectations of both patients and pharmacists in disaster periods such as the Covid-19 pandemic, in order to better steer policies and public decisions. Sociological studies on the professions of pharmaceutical assistance, health-related professions and pharmacy encounters can play a key role in this regard (Harding, Nettleton & Taylor, 1994; Harding & Taylor, 2002; Hibbert *et al.* 2002; Montgomery *et al.* 2010; Guzzo & Gallo, 2014; Traulsen *et al.* 2019).

These studies, especially if focused on the new digital role-set of pharmacists (Visacri, Figuereido & Lima, 2021), acquire greater importance also in the current phase of Covid Age in Italy. A phase characterized by two main aspects. First of all, the uncertain demand for the administration of vaccines in the Italian pharmacies (greater in the rest of Europe). Secondly, the pressing request by citizens-service users for a «new health citizenship» with new "packages" of digital and relational rights to health in pharmacy (Guzzo, 2021).

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Pharmaceutical Federation (FIP). The role of researcher was subsequently added to the list (Wiedenmayer *et al.* 2006).

[10] In fact: «Some of pharmacists' historical roles may be made redundant, and new roles may be created, decoupling pharmacists to a certain extent from the dispensing and supply process. It may also create an additional opportunity for pharmacists to be acknowledged and remunerated for professional services that extend beyond the dispensary» (Spinks *et al.* 2017, p. 394).

[11] In this sense, based on Nancarrow and Borthwick (2005), with reference to the professional history of British pharmacists, Cooper maintains: «professional status requires protection and control of certain – often highly skilled – tasks, as well as regulatory legitimacy and the maintenance of professional boundaries and jurisdiction» (Cooper, 2010 p.206).

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