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Fashion industry as a source of inspiration for the 'Mental Health Department 4.0': an overview

Summary

Objectives
To investigate the topic of creativity and innovation in psychiatry, with a focus on the Italian model of the mental health department.

Methods
This overview is based on books and papers purposely extracted from the national and international literature, published in the fields of psychiatry and economics, in English and Italian, without time limits, concerning the following topics: mental health care; mental health department; big data; creativity; innovation; Industry 4.0; fashion industry.

Results
The way data are collected, analysed and used to generate predictions in the fashion industry, namely in the fast fashion, may be a source of inspiration for Italian psychiatry, to innovate the model of the mental health department (MHD). This requires the ability to collect and process big data, by means of ad hoc data centers. Also, common software is required in each branch making up the MHD. The adoption of a broader approach to clinical practice based on projects (each project representing a user, and his/her family), rather than on problems/periods of life (i.e., childhood and adolescence vs adulthood, substance misuse vs psychiatric problems, psychological discomfort vs. psychiatric disorders, etc.) may help overcome some issues traditionally affecting psychiatry, e.g., the difficulty to close the gap between adult psychiatry and child and adolescent psychiatry, the difficult relationships between psychiatry and psychology, and the controversial concept of dual-diagnosis. A project-based approach may also foster the interplay with other Agencies and with Authorities.

Conclusions
To implement the 'mental health department 4.0', at least four issues are required: the implementation of data centers; the use of the same Information and Communication Technology system in each branch of the department; the generation of just in time outputs and data driven 'empirical responses' to mental health needs; the shift from a patient-centered system to a project-centered system. All this requires liaison functions and skills, as well.

Key words

Innovation • Mental health • Mental health department 4.0 • Fast fashion • Fashion industry

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Introduction

As psychiatrist who works at the interface between psychiatry and economics, I often notice a discrepancy concerning the relationship of both disciplines with contemporaneity. As far as economics is concerned, a topic regularly addressed in papers and seminars is the so called 'Fourth Industrial Revolution', based on the concept of 'Industry 4.0'. Originally conceived in Germany in 2011, the latter represents a radical shift in the industrial production implemented by the Western economies, in partic-

ular after the end (and possibly as a response to) the Great Recession. Industry 4.0 is based on the extensive use of cyber-physical systems, which generate and process big amounts of data in a very short time [1-4].

On the other hand, medicine seems still confined to the twentieth century. It is true that significant improvements have been made with the adoption of the managerial approach to healthcare in the early 1990s. Yet, it seems that the medical model is still relying (in the most virtuous cases) on an approach to production (of health interventions, services etc.) typical of the Second and Third Industrial Revolution, not fully in line with the deep changes occurred in our societies and economies in the last decades[4]. Similar considerations may be applied to psychiatry, and to the organizational model of the mental health department (MHD), experimentally implemented in Italy during the 1970s and 1980s, then widely adopted during the 1990s and the 2000s. To fill this gap, the debate concerning Industry 4.0 and the Fourth Industrial Revolution, as well as the innovation of new production strategies adopted by creative industries (such as fashion industry), may represent a source of inspiration for health services, namely for psychiatric ones, which face a steadily increasing workload, despite the spending review implemented in our country as main response to the recent economic crisis [5 6]. In this paper I will first summarise the evolution of the MHD in Italy from Act 180/1978 to the present, and I will then address the topic of innovation in the fashion industry, particularly with respect to fast fashion. Finally, I will end proposing to implement some features of the modern creative industry in the field of psychiatry, to innovate the model of the MHD and engineer the processes occurring in it, consistently with nowadays' needs. Such new approach to psychiatric services is tentatively named 'MHD 4.0'.

Methods

This overview is based on books and papers purposely extracted from the national and international literature, published in the fields of psychiatry and economics, in English and Italian, without time limits, concerning the following topics: mental health care; mental health department; big data; creativity; innovation; fashion industry. The literature was retrieved from Scopus and Web of Science using different combinations of the following keywords: "creativity", "fashion industry", "Industry 4.0"; "innovation", "psychiatry", "mental health", "mental health department". Moreover, a manual search on Google and reference lists of identified articles was carried out, and experts in the field of Italian psychiatry and innovation were consulted. Papers were selected by the author according to their relevance for the purpose of the present overview.

1978-2018: forty years of community mental health care in Italy

A 'great divide' may be identified in the history of Italian psychiatry, represented by Act 180/1978. The latter completely changed the ways mental health care was and still is delivered in our country. The main consequence of Act 180/1978 was to stop new admissions to the psychiatric hospitals (asylums), 'total institutions' which represented the main way to treat people affected by psychiatric disorders in Italy before 1978. Act 180/1978 did not close asylums, rather it prohibited new admissions to them, and fostered the implementation of small psychiatric units within the general hospitals. It took more than twenty years to close asylums, thanks to Decree 229/1999 (the 'third reform' of the Italian National Health System).

In the years following 1978, the development of psychiatric services in Italy was heterogeneous. In some regions a complex network of territorial and hospital units was created. Such network represented the model for the MHD, lately adopted at national level. On the other hand, other regions did not implement an adequate network of services for mental health care. The corollary of this was that big inequalities affected mental health care in Italy, both from the structural and functional standpoint [7].

To overcome this limitation, a first specific Plan [7] was made (1994-1996), with the aim of developing the MHD model in the whole country within 1996, i.e., to provide all twenty regions with adequate facilities to deliver psychiatric care. The MHD represents the way psychiatric facilities are organized inside Local Health Agencies, both at territorial as well as at hospital level. It is made up of four branches: community mental health centers, acute inpatient units placed within general hospitals, day-hospital facilities and residential facilities (Fig. 1). According to the Plan, five mandatory interventions had to be implemented. First, the organizational model of the MHD on the whole national territory. Second, specific interventions to overcome the issue of people admitted to psychiatric hospitals before Act 180/1978, who were still living there in the 1990s. Third, the promotion of an information system, to monitor expenditure in the field of mental healthcare, which may further represent a basis to establish cost centers. Fourth, the identification at national level of a system of quality indicators concerning mental health care. Fifth and final, the promotion of training initiatives for professionals consistent with the aims of the Plan.

Thanks to the first Plan, the organizational model of the MHD was developed in every Italian region. On the other hand, several needs were still to be met. For example, the absence of specific attention toward psychiatric problems concerning childhood and adolescence, a lack of systematic evaluation of resources allocated to mental health care and effectiveness of the interventions
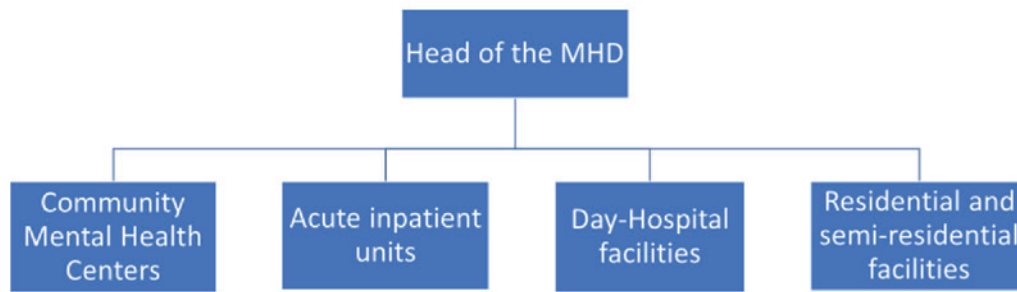
FIGURE 1. *The organizational model of the Mental Health Department (from Ministero della Salute, 1994; 1999, mod.)* [7 8].

implemented, a lack of adequate implementation of cost centers, and so forth. Therefore, another Plan (1998-2000) was made [8], which identified new aims concerning mental health care. For example, the implementation of primary, secondary and tertiary prevention programs, and of strategies to reduce suicides. This Plan confirmed the adoption of the organizational model of the MHD, and provided more details concerning role and function of the Director of the MHD, as well as of all facilities that make up the Department (Fig. 1). For each facility, detailed structural and organizational criteria were provided. Also, hints were provided concerning the relationships with universities and local authorities. It is worth noting that issues concerning Child-Adolescent Psychiatry were further developed by means of another, specific Plan [9].

To sum up, the first Plan (1994-1996) fostered the adoption of the MHD model, while the second Plan (1998-2000), provided more practical information concerning the way a MHD works, is structured and interplays with other branches of the health systems (e.g., primary care) or other Authorities. Finally, in March 2008 the Italian Ministry of Health approved the national guidance for mental health [10], that further integrate the first and second Plan.

In the light of the above, it is possible to conceive the MHD as shown in Figure I: an articulate, though static structure, featured by pros and cons. On the one hand, the organizational model of the MHD is able to cover all the areas and aims pointed out by the two Plans [7 8]. On the other, the structure is articulated and rigid, with possible problems of communication and misunderstandings between the different branches. The fact that this model is built according to static indicators (e.g., incidence and prevalence, population size, etc.) does not guarantee it is able to respond *just in time* to the actual burden of psychiatric disorders. In fact, the latter may vary quickly, depending on socio-economic changes, available resources, spending reviews, migrations, job losses, and so forth. Therefore, the model of the MHD

as currently conceived seems not completely able to respond to the current state of psychiatry and its needs. To overcome such limitations, innovation is needed, though the current political and economic scenario makes it difficult. A possible solution is to look for hints for innovation in other fields, as the one of creative industry. In fact, the organizational model of the MHD as represented in Figure I is partly similar to the one of traditional fashion industry, frequently featured by a rigid separation between creative and sales units [11 12], few formal and informal contacts between the members of different units are few, and scarce amount of information directly exchanged [13].

From fast fashion to the Mental Health Department 4.0

The topic of innovation is detailed elsewhere [14-21]. For the purpose of the present paper, it is worth noting that innovation is linked to creativity [13]. The latter may be defined as "the production of novel and useful ideas in any domain" [11]. Fashion industry is part of the culture industry [22], which refers to "economic activities in which symbolic and aesthetic attributes are at the very core of value creation" [22]. Creativity and the search for novelty are essential features of the culture industry [23]. Yet, the deep changes occurred worldwide in the last decades, due to globalization, Information and Communication Technology (ICT) diffusion and, more recently, to the severe economic crisis, have fostered the search for a major integration of market knowledge into new product development processes [23 24]. An example of this is fast fashion, a production strategy adopted since the early 2000s by a group of firms such as Zara and H&M, different than the traditional production paradigm adopted by fashion industries (though the issue of anticipating and incorporating the market's needs in the implementation of new products features all industries, even those that do not adopt a fast fashion paradigm; the latter may be conceived as a specific way to face

the above mentioned contemporary challenges). Traditionally, fashion industry is featured by the production of one or two collections per year, separation of units (i.e., design, production, sales etc.) and longer times (seasons or years). Alternatively, fast fashion adopts a different production strategy, in which the collection is launched and then regularly modified according to the feedbacks of the sales. As a result, collections are changed every two weeks, and in a single year up to 12-24 collections may be produced and sold. It is therefore fundamental that design, production and marketing are tied together. Design is 'inspired' by what the market requires most in a certain period, and production has to quickly respond to both creative inputs and market requirements. What is typical of the fast fashion model is that shops are owned by the firm, because selling points are conceived as antennas, able to capture what products are sold most and provide the core of the creative industry (i.e., the design unit) with a big amount of data. In this model, products, namely clothes, may be conceived as probes, launched to collect data from the market. This provides the products with two different meanings. On the one hand, products are goods to sell, to generate a profit. On the other, they are a source of information. To sum up, the success of this model is based on three elements: data collection, data analysis and interpretation, and ability to test the hypothesis derived from the two previous points [25].

Collection and processing of data are key-issues of fashion industry, namely fast fashion, as well as the majority of industries in the Fourth Industrial Revolution. In this phase of capitalism, data are conceived as 'the new oil'. Therefore, data centers are the core of every type of industry, as well as Agencies operating in the healthcare field. Another key-issue is the use of data to generate new ideas to translate into new products as far as possible. This model of 'empirical response' to the market seems useful for healthcare systems as well, particularly for psychiatric services, to innovate the MHD. In this field, private profit may be replaced by the concept of efficiency. Therefore, following the metaphor of products as 'goods and probes', everything is done within a public service may be conceived at the same time as health intervention and source of information (data).

The idea of developing data centers within the MHDs is not new; it is consistent with the two above-mentioned Plans [7][8]. Yet, a hint for the innovation of MHDs is to develop data centers able to manage big data by means of specific algorithms, as currently done by social networks such as Facebook or big companies as Amazon. This also requires a radical shift: to conceive everything is done within a MHD as *a source of data*, in the same way as fast fashion considers products as probes, launched to gather data. This structural and functional organiza-

tion may provide the management of the MHD with information that might be quickly implemented in the clinical practice, with a reduction of the lead time. Of course, it is necessary that all branches of the MHD use the same ICT system and software, to speed up communication, collaboration and integration between the parts.

A final step toward the MHD 4.0 is the implementation of a (clinical) project-centered system, rather than a patient-centered system. To better understand this issue, an example is useful. A patient-centered system means that the user is the 'unit of analysis' and of interest. All is planned around the person: family interventions, medical interviews, nurses' interventions, vocational rehabilitation, and so forth. Yet, this approach mirrors the bio-medical model focused on the disease (in this case, the psychiatric disorder), and the individual as person affected by it. On the one hand, such approach is useful, particularly when the workload does not exceed the professional group's capacity and resilience (i.e., those featuring the multidisciplinary équipe, made up of psychiatrists, nurses, educators, mental health technicians etc.). On the other hand, the patient-based model has some limitations, that become evident particularly with respect to the several branches making up the MHD. In fact, traditional issues concerning psychiatric services are represented by the transition from child-adolescent psychiatry to adult psychiatry, or the situation of a user that belongs at the same time to the caseload of two services, e.g., adult psychiatry and substance misuses services, as in the case of *dual diagnosis*. In such condition, as well as in others, the traditional MHD model, static, vertical, rigid, and patient-centered shows all its limitations.

A project-based approach postulates that multidisciplinary mini-équipes are built around the project, rather than the patient. The project starts when users or relatives meet (*even virtually*) any MHD facility for the first time. From that moment on, they will be part of the caseload of the Department, rather than to a single branch of it. Therefore, it is not the user that moves from one branch to another, according to his/her needs; rather, it is the équipe composition that changes, according to the user's needs, and moves, following the person. Also, it is not necessary that a user (i.e., a person affected by one or more psychiatric disorders) contacts the MHD. The project may start even when a user refuses to attend the community mental health service or other facilities. A corollary of all this is that case management and integration skills are required, a topic addressed in the next paragraph.

Table I summarizes the main features required by the MHD 4.0, shown in Figure II. As noticeable, the core of such model is the data center, rather than the top management. The center should be a multidisciplinary unit,

TABLE I. *Features of the Mental Health Department 4.0.*

Feature/action	Aim
Use the same ICT system and software	To foster quick communication, collaboration and integration between the branches of the MHD
Implementation of data centers	Data collection; development of specific algorithms for data analysis; generation of 'empirical responses' *(see text for details)*
Everything is a source of data	To improve data collection (quality and quantity)
Development of specific algorithms	To analyze and process big data
Shift from a patient-centered system to a project-centered system.	To reduce the gap between the branches of the MHD

made up of statisticians, engineers and mental health professionals (e.g., psychiatrists and nurses), specifically with clinical and liaison skills. It is fundamental that health professionals that participate to the data center be regularly in touch with the clinical practice, to properly interpret data analyzed by the algorithm.

It is important to acknowledge that previous experiences of integration within the MHD are reported in literature [26-29]. What the MHD 4.0 adds is the implementation and integration of cyber-physical systems to gather, manage and analyze big amount of data concerning clinical practice in psychiatry, to generate predictions with respect to incidence and prevalence of psychiatric disorders, as well as to the workload of the Department. The ultimate goal of this is to increase the efficiency of the health system.

Integration within the Mental Health Department 4.0

The engineering of processes within the MHD 4.0 requires adequate integrating skills and functions. Case management is an issue frequently referred to, and extensive literature is available on this topic [30]. This para-

FIGURE 2. *The organizational model of the "Mental Health Department 4.0".*

graph focuses on *liaison skills*, a transversal topic concerning case-management as well as communication between different professionals and integration of the several branches of the MHD. Again, fashion industry provides us with hints and suggestions [13].

Integration may be defined as the collaboration between professionals who work in differentiated units aiming "to achieve unity of effort" [31]. On the other hand, differentiation may be defined as "the status of segmentation of the organizational system into subsystems" [31]. In the organizational system of the MHD, sub-systems are represented by its four branches (Fig. 1). As in the fashion industry, even in the MHD knowledge integration mechanisms may be formalized, semi-formalized or informal. In the MHD, formal integration mechanisms are, for example, meetings between the managers of specific units; semi-formalized integration mechanisms may be represented by training courses and initiatives for the personnel. Finally, informal integration mechanisms may be represented by information or knowledge exchange between colleagues who meet in situations outside working hours. The three levels of integrations are featured by different cognitive distance and levels of time constraint [13]. Therefore, knowledge intermediaries are important actors within the organization (peculiarly in the fashion industry), able to reduce the cognitive distance between members of different units. The latter may present different ways of understanding and interpreting their experiences. Therefore, facilitators and translators are needed to bridge the cognitive distance, and foster integrations between different units [32 33]. Two types of knowledge intermediary may be identified: "knowledge facilitators" and "knowledge translators". The former are individuals who transfer knowledge across syntactic "unproblematic" boundaries among organizational units, while the latter are individuals who enable the flow of knowledge by removing semantic barriers [13 32-34].

From the current organization of MHDs as displayed in Figure 1, the importance of facilitators and translator roles in fostering the communication between each branch of the MHD stems out. It may be assumed that many cas-
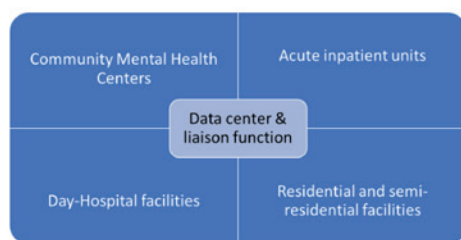
es of "difficult patients" or difficult relationships between branches may be due to reduced/absence of integrative function, linked to a reduced facilitator/translator role. Therefore, it is essential to identify the mental health professionals who may exert this specific function as knowledge facilitators/translators, i.e., the integration between different units. On the other hand, it should be bared in mind that in psychiatry this role is not always represented or exerted by a specific professional, distinguished by the other mental health professionals. Besides being conceived as a professional role, it may also be conceived as a *function*, or a skill that each mental health professional should display in certain circumstances. With respect to this, it might be argued that this is typical of consultation-liaison psychiatry. Yet, rather than a sub-specialty, the latter should be conceived as a *forma mentis*, i.e., an attitude required in every field of psychiatry, and by every mental health professional [35]. This is a noticeable difference between fashion industry and the MHD 4.0. In fact, while in the fashion industry liaison roles are formalized, in psychiatry such roles may be displayed by all professionals (at least, in certain circumstances).

The last years have been featured by a severe economic crisis, with noticeable mental health outcomes for both the population and the mental health services [5 36-38]. Moreover, austerity measures were implemented, with noticeable consequences for the Italian National Health Service [6]. One of the strengths of the present paper is to suggest an organizational model that may help increase the efficiency of the MHD, in times of reduced funding and increased workload. Despite this, some major limitations of the present overview need to be acknowledged. First, due to the methods adopted, it is possible that not all relevant papers on the topic were included, since literature was not systematically investigated. Despite this, it was possible to address the topic of innovation in psychiatry, as well as the possibility to look for sources of innovation in other fields, such as the one of creative industry. Second, this paper mainly deals with issues concerning Italian psychiatry: therefore, it is possible that the findings here presented might be of limited interest for clinicians or researchers working in other countries. Yet, innovation remains a fundamental topic in Italy, concerning both the private and public sector. Third, in the present study the original model of the MHD as detailed in the two Plans was considered [7 8]. It could be argued that more articulated models are currently implemented, that address substance misuse, child and adolescence, and psychological issues by means of

specific and integrated facilities [39]. Yet, the organizational model of the MHD 4.0 could be potentially applied even in the most advanced types of mental health care services. Fourth, this overview provided mainly speculations concerning the MHD 4.0, though no evidence or practical experience were provided. To overcome this major limitation, further studies are needed, to test the usefulness of the organizational model here proposed.

Conclusions

The present paper summed up the development of the MHD model, and suggested possible ways to innovate it, inspired by some features of production and management of innovation processes typical of the fashion industry, as well as by Industry 4.0. As a consequence, it was proposed to name this process of innovation 'MHD 4.0'. The latter may be helpful for users, families and services. The users and their family may receive more effective and tailored interventions, and may be actively involved by means of all technologies available in the contemporaneity (smartphones, apps, Social networks, etc.). Even professionals working in the MHD or at the interface with it may better their working conditions. Yet, it should be remembered that the balance between flexibility and precarity, and between smart work and increased workload is not an easy one. What may sound appealing for the organization might not be the same for workers. Moreover, some work features in the 21st century may turn into risk factors for burnout syndromes and depressive disorders[4]. Creativity may help, both to look for innovation as well as to foster health promotion and protection of both users and personnel. Not surprisingly, fashion industry was considered a source of innovation for the MHD. In fact, psychiatry as well may be conceived as a particular type of "creative industry", in which creative processes should be elicited and managed, since creativity, when appropriately guided and applied, is the main avenue toward mental health.

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