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COMPUTER-MEDIATED PSYCHOTHERAPY.
PRESENT AND PROSPECTS.
A DEVELOPER PERSPECTIVE

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ABSTRACT

We define computer-mediated psychotherapy (CMP) as a computer application that: (a) is explicitly created to serve a psychotherapeutic purpose; (b) implements the principles and methods of bona fide psychotherapy; and (c) involves the patient into a range of psychotherapeutic activities. Relying on an extensive review of the literature, we found, from a developer perspective, clear reasons of optimism: the efficacy of CMP is comparable with that of traditional face-to-face therapies; its benefits exclude the costs and the demand is high. Hybridized forms show superiority over pure computerized therapies. CMP has the potentialities to produce substantial improvement of mental-health care system by: a) switching the focus of psychotherapy from symptom alleviation to enhancement of help seeking behavior; b) focusing on client as the agent of therapeutic change; and c) capitalizing on theoretical and methodological achievements from e-learning.

KEYWORDS: *computer-mediated psychotherapy, e-therapy, computerized therapy, e-health, PAXonline.*

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1. CONCEPTUAL CLARIFICATIONS

There is a burgeoning terminology related to the use of computers in providing psychotherapy services. Terms like "computerized psychotherapy", "computer-aided psychotherapy", "e-therapy", "computer-supported psychotherapy", "web-based or internet-based psychotherapeutic interventions", "computer treatments", "computerized cognitive-behavior therapy" are often used interchangeable, covering large arrays of somehow different realities (Marks, Cavanagh, & Gega, 2007; Titov, 2007). Such terminological disarray is rather typical for any young and emerging field of research and practice, in any research or technology domain when at the beginning it is difficult to see the forest beyond the trees. However, at least for pragmatic reasons, we consider that any computer application which aspires to be a psychotherapeutic tool must satisfy concurrently at least the following three constraints:

(1) it is explicitly created to serve a psychotherapeutic purpose;
(2) it implements the principles and methods of a bona fide psychotherapy (i.e., a psychotherapy pretending to be therapeutic, offering viable treatments);
(3) it involves the beneficiary (the client) into a range of psychotherapeutic activities.

Relying on these constraints, we shall not consider blogs, podcasts, online support groups, online assessment or therapeutic video presentations as computer-mediated psychotherapy. They may have psychotherapeutic valence, but they have not explicit psychotherapeutic purpose, they do not implement the principles and methods of a specific psychotherapy (e.g., cognitive-behavioral therapy, problem focused therapy, psychodynamic, experiential therapy, etc.), and they do not require an active involvement of the recipient clients. By the same token, the websites which are created for educational or informative purposes, although they may have incidental psychotherapeutic effects, should not be considered computer-supported or computer-aided psychotherapy. In other words, we apply at the digital world the same logic as for the real world: although there are many social endeavors that could have psychotherapeutic impact, they do not qualify for the specific category of activities called psychotherapy. In short, computer-mediated or computer-aided psychotherapy – we use these terms as equivalents – should be reserved only for those computer applications that have an explicit psychotherapeutic purpose, that implement the principles and methods of bona fide psychotherapy and that involve the recipient into psychotherapeutic activities. A large range of problems

concerning the effectiveness, efficiency or feasibility of computer-mediated psychotherapy, its place in the mental-health care system, or the relationship with other e-health solutions become more manageable when operating with a restricted category as we have proposed above than with an omnibus concept. As we know, those categories which are very inclusive automatically lose their epistemic power; or, in the words of Spinoza: "*Omnis determinatio negatio est*".

Another aspect that should be clarified refers to the fact that computer-mediated psychotherapy (CMP) covers a large range of possible psychotherapist's involvement in psychotherapy carried-out by computer applications. It varies from none involvement, as in self-help web-based interventions (Panic Centre, http://www.paniccenter.net, Overcoming Depression on the Internet – ODIN, http://www.kpchr.org/feelbetter or CD-ROM software - Cool Teens CD-ROM) to minimal assistance and to weekly classical therapeutic sessions complemented with home assignments and resources from a computer application. The client's modalities to access the psychotherapeutic softwares are also variable, from offline or stand-alone personal computer (e.g., Overcoming Depression, a Calipso product from Media Innovation Ltd) to internet websites (e.g., Beating the Blues, http://www.ultrasis.com, Panic Online, http://www.med.monash.edu.au), or both modalities for the same application (Standalone Fear Fighter and net Fear Fighter, http://www.fearfighter.com). The range of mental disorders addressed by computer-mediated psychotherapy is rather limited, but quickly expanding, with anxiety disorders and depression ranking first, followed by web-based interventions for smoking cessation, drinking, body-image, weight loss, tinnitus distress, insomnia, and sexual problems (Barak et al., 2008). Marks, Cavanagh, and Gega (2007) make references to 97 computer-aided psychotherapy sites and 175 published and unpublished randomized controlled trials, case reports, small pilot and large open studies. In terms of type of therapy implemented by computer applications, behavioral therapy is, by far, the most prevalent. In fact, computer-mediated psychotherapy is almost coextensive with so called cognitive computer-mediated psychotherapy (CMP = CCMP). The reasons are twofold: CBT is manualized and easier to implement on a computer application and its efficacy had been extensively validated (Westen, Novotny, & Brenner, 2004; Westen & Morrison, 2001).

2. THE PRESENT STATUS OF COMPUTER-MEDIATED PSYCHOTHERAPY

The present status of CMP is rather promising (Barak et al., 2007; Marks, Cavanagh, & Gega, 2007). Repeated meta-analyses of randomized clinical trials (RCT) studies where CMP was compared with various control groups emphasized an overall weightened effect size of medium intensity (Barak et al., 2008; Marks, Cavanagh, & Gega, 2007). For example, in a comprehensive review and a meta-

analysis of 92 studies concerning internet-based psychotherapeutic interventions, Barak et al. (2008) reported an overall weightened effect size of 0.53. Similar conclusions are obtained by Titov (2007), Murray et al. (2005), Przeworski and Newman (2006). However, we should consider that the variation of effect size reported in these studies is very large, from a minimum effect size (ES) of -0.10 (Richards, Klein, & Austin, 2006) to 1.68 (Strecher, Shiffman, & West, 2005). There are many explanations for this variability, from the type of outcome measures used to the type of control group or the methodological quality of the study (Marks et al., 2007, 2010; Titov, 2007). The efficacy and the effectiveness of CMP is easier to appreciate, if put in the context of the efficacy of face-to-face or medication therapy (see Table 1).

Table 1
Illustrative effect size from meta-analyses of treatment outcome studies

Nr.	Treatment type	Effect size	No. of studies or meta-analyses	Reference
1.	Various therapies and disorders	0.75	18 meta-analyses	Lipsey & Wilson, 1993
2.	CBT and behavior therapy, various disorders	0.62	23 meta-analyses	Lipsey & Wilson, 1993
3.	CMP, various disorders	0.53	92 studies	Barak et al., 2008
4.	Antidepressant (FDA registered studies 1987-2004)	0.31	74 studies	Turner et al., 2008

The median effect size presented by Lipsey and Wilson (1993) to general psychotherapy is congruent with those reported by Smith et al. (1980) – ES = 0.85 (465 studies), Robinson et al. (1990) – ES = 0.73 (37 studies), Wampold et al. (1997) – ES = 0.82 (comparing 277 effect sizes). Similarly, the median effect size of 0.62 for CBT is in the range of the results obtained by Öst (2008) – ES = 0.58 (13 studies), Haby et al. (2006) – ES = 0.68 (33 studies) or Cuijpers et al. (2007) – ES = 0.87 (16 studies). The effect size for CMP of 0.53, reported by Barak et al. (2008), are similar to the effects reported in many other reviews (Spek et al., 2007 – ES = 0.22 for depression, and ES = 0.96 for anxiety in 12 studies; Wantland et al., 2004 – ES varying from -0.01 to +0.75 in 22 studies).

The main conclusion we can draw from these data is that CMPs produce effects comparable with those reported for face-to-face therapy or medication. In fact, from 92 studies included in one meta-analysis (Barak et al., 2008), there are 14 that directly compared the internet-based (n = 940) with face-to-face (n = 593) treatments. The weightened ES for internet-based interventions was 0.39, whereas the ES for face-to-face treatment was 0.34, a difference statistically non-significant.

At least for a developer of CMP systems, the message provided by these data is optimistic; it says: "keep going, you are on the right track", which is a necessary and sufficient condition to promote further innovations.

The second lesson we can learn from reviewing meta-analyses dedicated to CMP is that the effectiveness and efficacy improve when computer applications are hybridized by a minimal contact with a therapist or other professional. We can read this impact on two variables: the attrition rate and the effect size. Although CMP could reduce therapist hours with more than 70% (NICE, 2006), for the computer applications which do not allow a minimum contact with a professional (by email, video telephone) we found a very large attrition rate and a reduced effect size (Titov et al., 2008). Barak et al. (2008) reported for therapies implemented by interactive sites the ES = 0.65, whereas the interventions supported by static sites have ES = 0.52, a difference statistically significant. Moreover, Carlbring et al. (2005) found an ES = 0.78 for an internet application with no specialist contact and an ES = 1.10 when a minimal specialist contact by telephone was added. Similarly, Anderson et al. (2006), using a Swedish-developed program for social phobia, obtained an ES = 0.80 and a completion rate of 3% at post-treatment. On the same program, when Carlbring et al. (2007) added a minimal therapist email contact, they obtained an ES = 0.95 and the treatment adherence raised to 93%. In a similar vein, Spek et al. (2007) found that computer-mediated interventions with therapist support have a large effect size, ES = 1.00, whereas interventions without therapist support had smaller effect size (ES = 0.24).

To summarize, there are now enough data to conclude that the most successful CMPs are relying on hybridized form. We find a similar pattern of evolution in e-learning which has evolved toward **blended learning**, a mixture of pure e-learning and face-to-face learning. Which is the best possible blend of computer application and human support is still a question to be addressed by the research, but the superiority of blended solution over pure computerized solutions is an evidence-based conclusion.

The third critical aspect of CMPs refers to the feasibility/usability and costs. There are, no doubt, a series of advantages and costs of using computer-mediated psychotherapy. Table 2 summarizes the most relevant benefits and costs associated to the present CMPs (see also Marks et al., 2007; NICE, 2006).

Table 2
Benefits and costs of CMP

Nr.	Benefits/advantages	Costs/disadvantages
1.	Large dissemination of standardized yet individualized treatments	Process of communication is impaired (e.g., non-verbal hints about patient are difficult to detect)
2.	Inclusion of screening and diagnostic tools	High cost for development and accreditation of CMPs
3.	Reduced costs for the client	Technophobia of the users (more present among therapists than among patients)
4.	Increased availability of intervention (spatial, temporal, financial)	One size does not fit all.
5.	Reduced stigma	Inability to detect and deal with complications of the patient's symptomatology
6.	Possibility to monitor self-progress and offers systematic feed-back for the users.	
7.	Can increase the treatment capacity of trained therapist, due to reduced time required/patient	

Besides costs and benefits, one of the basic things we must realize is that the use of computer/web-based applications to deliver psychological interventions is already a fact. Our clients put their demand for mental health information and help on the net. Proudfoot et al. (2007) reported, for example, that 80% of internet users in USA and 4 out of 5 in Australia, with internet access, actively seek health-care information and help on the internet. Information about mental health issues is most regularly sought, with depression, bipolar disorders and anxiety problems accounting for 42% of the information sought (Proudfoot, 2004; Taylor, 1999). A survey in UK, among potential users for self-help psychotherapies found that 91% of the respondents wanted to access self-help via a computer application (Graham et al., 2001). These are clear indications that users of CMP report high satisfaction; the drop-out rate (when hybridized with minimal professional intervention) is similar to face-to-face psychotherapy and, sometimes, self-disclosure is easier on the internet than in the therapist's office (Proudfoot, 2004). It is also to mention that, for the new generations, the so called "digital natives", interacting with the computer system will become a kind of "default value" for their daily behavior.

The logical conclusion from the aspects presented above is very simple: **if our clients put their demand on the internet, than we shall put our offer there too!** This does not mean the end of face-to-face psychotherapy, but, we hope, it is the end of an overwhelming **reactive attitude** from the part of mental-health services and psychotherapy. Traditionally, psychotherapists do nothing to promote

their services beyond the psychotherapeutic sessions. They are rather self-centered than proactive, waiting for patients to reach their offices than to make treatment more accessible for the clients. If we will continue to wait and offer our psychotherapies only for those who knock on our offices' doors, pretty soon we will be over-passed by the reality.

There are few studies about the cost-effectiveness of CMPs, but the fact that a public regulating body like NICE (National Institute for clinical Excellence), after a comprehensive analysis of efficiency and cost-effectiveness, has already recommended Beating the Blues (for depression and anxiety) and Fear Fighter (for panic and phobia) to the National Health Services, is very relevant. Of course, we need now a financial model, so that individuals can purchase treatment, insurance companies pay for treatments and providers charge for development and usage of treatments. As Ritterband et al. (2003) have put it: "Without some financial framework, these interventions will not survive, regardless of how effective they are found to be" (p. 532).

After this concise analysis of the present situation, shall we continue to develop computer-mediated psychotherapies? The answer is a qualified **Yes**. Besides the methodological variations and theoretical idiosyncrasies, we can say that:

(1) the efficacy of CMPs is comparable with the traditional face-to-face psychotherapies;
(2) hybridized forms (computer application + minimal therapist involvement) clearly increase the effect size and have been proved to be superior to purely computerized psychotherapies;
(3) the benefits of CMP exceed the costs (at least for the patients and mental-health system, if not for the developer). Moreover, given enough time and resources, any technical problem or deficiency of a CMP system can be fixed;
(4) the people in need for assistance for mental health problems put their demand on the internet. We should put our offer there too, not only inside our own offices.

3. PAXONLINE – A CMP FOR ANXIETY DISORDERS

Relying on the comparative analysis of three existent CMP systems, we created a multi-user platform for the prevention and psychotherapy of anxiety disorders – PAXonline, which already passed the beta-testing phase.

The web-based platform is designed to be used by three categories of users: patients, psychotherapists, and family physicians, with the explicit purpose to integrate mental-health care efforts. There are two levels of access: visitor level and user level. At the visitor level, which is free of charge, any visitor has access to a range of resources related to anxiety disorders. One can learn about the characteristics, etiology, prevalence or type of available treatment for anxiety disorders. There are also two screening instruments available. After self-administration of the first screening, one can learn whether it is **possible** or not to have an anxiety problem. The second screening provides an automatic response in terms of which anxiety disorder is most likely for the respondent. There are also three short (7 minutes each) videos which show how to further use PAXonline, from the perspective of a patient, a family physician or a psychotherapist. Thus, after operating at the visitor-access level, one can know: a) whether it is possible/probable to have an anxiety disorder, b) what does it mean and which are the available treatments, and c) what to expect from the further use of PAXonline.

The second level of access is protected and differentiated on the type of the user: patient, psychotherapist or family physician.

After the filling of a registration form and paying an access fee, the patient receives a user name and a password via e-mail. From now, all the personal data are encrypted and confidentiality is guaranteed. The patient accesses a personalized homepage, where one has available: (1) advanced diagnostic tools, adapted for Romanian population; (2) psychotherapeutic programs for each specific anxiety disorder; (3) a personal portfolio where are saved personalized modules of psychotherapeutic treatment, assessment results, specific resources, and one can keep a personal diary; (4) access to a psychotherapist, either asynchronous (via e-mail) or synchronous (via video-chat and a kind of messenger system); (5) specific resources for prevention and psychotherapy of any anxiety disorder; (6) a patient dedicated forum, moderated by a psychotherapist and a family physician.

The core of the platform – the psychotherapeutic programs for each anxiety disorder – consists of about 12 modules/program, aiming to produce and catalyze the psychotherapeutic process inside the patient's mind. The multimedia modules can be covered with or without psychotherapeutic assistance, upon the decision of the patient. If a patient chooses to be assisted by a psychotherapist, than his/her psychotherapist has access to his/her personal portfolio and can further personalize and make the treatment even more flexible.

A family physician using PAXonline, after filling the registration form, accesses his/her homepage, which allows him/her to: (1) administer screening instruments for anxiety disorders; (2) refer his/her patients to PAXonline, where one has access to psychotherapeutic programs and additional resources, with or without psychotherapeutic assistance; (3) access psychotherapeutic programs and

specific resources; (4) use a digital patient register; (5) access a professional forum on the topics of anxiety disorders, specially designed for family physicians.

The psychotherapists who use PAXonline must be certified by the Romanian College of Psychologists and have special credentials for computer-mediated psychotherapy. Using PAXonline, they can: (1) access psychotherapeutic programs for anxiety disorders, which they can calibrate according to the specific characteristics of a specific patient; (2) offer assistance to their virtual patients via video-chat or e-mail; (3) use a digital patient register, for the management of patients, treatments, assessments and resources; (4) supervising (or be supervised by) other psychotherapists; (5) access to dedicated professional forum and advanced resources for psychotherapeutic approach of anxiety disorders. PAXonline can be used by the psychotherapists either as a virtual clinic where one meets his/her patients or as a supplement for face-to-face psychotherapy. A short comparison of PAXonline with other CMP systems is provided in Table 3.

Table 3
Comparison between PAXonline and other computer-mediated psychotherapies

CMP \ Features	PAXonline	"Beating the Blues"	Fear Fighter (FF)	Panic Center	"Moodgym"
Whom does it apply to? The beneficiaries.	Patients Psychotherapists General Practitioners (GP)	Patients Experts can give the patients auxiliary support, but they don't benefit from any specific resources.	Patients (adults)	Patients (adults)	Patients (15-25 years old)
The approached problems	The prevention and psychotherapy of anxiety 7 programs – one general program and 6 specific programs, one for each type of anxiety disorder	Anxiety and depression	Panic disorder and specific phobias	Panic disorder and agoraphobia	Prevention of depression in adolescents
The time, no. of sessions	3 months for patients 1 year for psychotherapists Unrestricted time period for GP An introductive video session specific for each user 7 programs of 10-12 modules each	A 15 minutes introductive video session 8 sessions of 50 minutes each	10 weeks (3 months) 9 modules	16 weeks 9 main modules and other 7 additional modules	6 weeks 5 modules

Table 3
Comparison between PAXonline and other computer-mediated psychotherapies (cont.)

CMP / Features	PAXonline	"Beating the Blues"	Fear Fighter (FF)	Panic Center	"Moodgym"
Aspects of usage, locations, accessibility	Online Can be accessed directly from internet, through GP's referral or psychotherapist's referral	Organized setting: clinics, private offices; also online access. Flash technology GP's referral	Standalone FF Net FF FF education Only by GP's referral	Online	Online
Available human support/assistance	Psychotherapeutic assistance offered only by request, via mail, messenger or video chat.	5 minutes before each session and another 15 minutes top after each session (at the clinics)	5 minutes before each session and another 15 minutes top after each session (at the clinics) Helpline facilitators – via phone or mail (net FF) – maximum 1h	Support group on forum Further discussions with other patients or the forum moderator via instant messenger	None
Conducted evaluations/ assessments	Preliminary screening Advanced evaluations Evaluations conducted at the beginning and the end of each module	An evaluation is conducted, at the beginning, in order to rule out the people suffering from psychotic and bipolar disorders, drug addiction problems and the suicidal- prone persons. Initial and final evaluation conducted each session	An evaluation is conducted at the beginning in order to rule out the people suffering from psychotic and bipolar disorders, drug addiction problems and the suicidal- prone persons. Initial and final evaluation conducted each session	Initial and final evaluation conducted each session or by patient's request	There are 2 anxiety and depression questionnaires at the beginning of each module

Table 3
Comparison between PAXonline and other computer-mediated psychotherapies (cont.)

Features / CMP	PAXonline	"Beating the Blues"	Fear Fighter (FF)	Panic Center	"Moodgym"
Basic components	Psycho-education Cognitive-Behavioral Therapy Homework	Cognitive-behavioral therapy Homework	Cognitive-behavioral therapy Homework	Psycho-education; elaborated answers and questions Cognitive-behavioral therapy Homework	Online exercises Games Relaxation tapes Cognitive-behavioral therapy Homework
Additional options	Personal portfolio Forum—one for each type of user Basic and specific resources and information Advanced evaluation Rewards within the programs Real life stories Characters used to illustrate the whole process of treatment Audio versions Personal diary Dictionary Troubleshooting – support in case of difficulties	User's journal or notebook Goals setting 5 video case-studies are used as illustration	Goals setting Troubleshooting – support in case of problems, difficulties. Real life stories – short quotations, appraisals and opinions.	Drugs dictionary Panic dictionary Support group – expert mediated forum Instant messenger Mood Tracker – a type of journal where patients can write online daily about their mood, panic attacks. Goals setting; one can compare his/hers goals with the others' Other users' confessions	User's journal or notebook
The navigation pattern	Proposed navigation path, but the user can choose the navigation pattern by him/herself. The psychotherapists can adjust the intervention based on the patients' progress and needs	Compulsory navigation path 1 weekly session	Compulsory navigation path 1 weekly session	The first session is longer and compulsory. The other sessions are all available by choice	Compulsory navigation path

To summarize, PAXonline integrates the specific efforts of patients, psychotherapists and family physicians, in order to promote mental health and it is the cornerstone of a stepped-care approach in anxiety disorders. It is focused on catalyzing psychotherapeutic process inside the patient's mind and on optimizing his/her help-seeking behavior. All actors involved are empowered to contribute synergically to the psychotherapeutic process (see www.paxonline.ro for further details).

THE PROSPECTS

Three interrelated aspects we consider relevant for the future impact and development of CMP: a) focus on help-seeking behaviors; b) a reconceptualization of psychotherapy, and c) the knowledge-transfer from e-learning.

1.　*Focus on help-seeking behavior not on symptom alleviation*

The present situation in mental-health care is somehow paradoxical: on the one hand, we have a very high prevalence rate of mental disorders and a huge incumbent burden, and, on the other hand, we have an extremely reduced accessibility of psychotherapeutic services.

A large number of epidemiological studies show an increased prevalence of mental health problems. Depression, for example, is becoming the second leading cause of disability, worldwide, and about 29% of the population develop an anxiety disorder over lifetime (European Commision, 2005). In a review of 27 studies about the size and burden of mental disorders in Europe, Wittchen and Hoyer (2002) revealed that 17% of the European adults have experienced at least one mental illness. The overall prevalence rate of anxiety in children and adolescents has exceeded 10%, and about up to 30% of adolescents exceed the clinical cutoffs in self-reported indices of depression (Collins et al., 2004). Moreover, anxiety and depression tend to be chronic and recurrent. Only 39% of the patients with panic disorder show remission in 1 year follow-up (Keller et al., 1994), and between 50-85% of depressive patients experience multiple episodes (Coyne et al., 1999). The economic, personal and social burden of anxiety and depression is huge. Only in the USA, anxiety disorders costs have been estimated to 42.3 billion of dollars/year and for depression they rise to about 44 billion dollars/year (Greenberg et al., 1999; Collins et al., 2004). In Europe, the overall economic cost of mental illness is estimated to 3-4% of GDP and it represents the major cause for disability pensions and for early retirements.

On the other hand, only 14.3% of those with a 12 months psychiatric disorder and only 40% of those with a life-time disorder have obtained a professional treatment in the past year (Wang et al., 2000). Similar data on a

community survey of major cities in Canada show that only 5% and only 1.4% of individuals with depressive and anxiety disorders, respectively, had ever consulted a psychiatrist. Overall, it has been estimated that only 15.3% of those with a serious mental illness have received adequate treatment (Wang et al., 2002, Collins et al., 2004) and fewer than 14% of people with a neurotic disorder were currently receiving any form of professional treatment (Bebbington et al., 2000).

A short analysis of the help-seeking behavior of a person with mental health problems could explain this rather paradoxical situation (see also Collins et al., 2004).

When facing a mental-health problem, the one's help-seeking behavior is confronting with a series of obstacles related to him/her, to the family physician, the psychotherapist, and mental-health system as a whole.

The barriers within refers to:

a) reduced perception of need for treatment, people being prone to perceive mental problems as transient and to deny or minimize their severity (Mojtabai, 2002);

b) desire to handle problems on his/her own and fear of stigma;

c) preference for informal helping support network, from friends or relatives (Barker et al., 1990; 2002). In fact, people are actually implementing a "stepped-care" procedure: they try to get help from everyday environment and only if they are failing, then, eventually, look for professional/formal help;

d) lack of awareness of available treatments and negative stereotypes about treatments (Christiana et al., 2000);

e) reduced readiness for change (O'Hare, 1996), according to Prochaska's stages;

f) costs (time, money etc.).

Once these obstacles are over passed, the typical behavior of the afflicted person is to seek help from the family physician (general practitioner). Indeed, the family physicians are real gatekeepers of the mental-health care system; about 83% of those with anxiety and depression paying visits to family physicians, and they usually stop there (Ohayon et al., 2000).

The main obstacles for a help seeker at this level refer mainly to:

a) lack of screening instruments and other adequate resources for mental health problems. This aspect is testified by a huge under detection, at this level, of mood and anxiety disorders, especially.

For example, only 15% of anxieties and 36% of depressions are detected by the family physicians (Ustun & Sartorius, 2002);

b) reduced training of the general practitioners/family physicians for the management of mental-health care problems;

c) structure of practice (centered on treating organic pathologies and reduced willingness to approach mental health problems);

d) reduced or no connection with psychotherapeutic services.

Supposing now that a lucky person is among those 15% whose anxiety was detected by the family physician and has received adequate primary care, being afterwards referred to a psychotherapist. At this level, the person is confronted with other barriers, among which we mention:

a) difficulties in accessing psychotherapists (e.g., financial costs, time schedule, geographical obstacles);

b) insufficient training in evidence-based psychotherapy (and CMPs);

c) cultural and axiological differences between client and psychotherapist;

d) stigma associated to psychological treatment (e.g., very sensitive groups: policemen, military, etc.) and lack of compliance, which produce a drop-out rate of 35-47% (Marks, Cavanah, & Gega, 2007);

e) limited efficacy of face-to-face psychotherapy (e.g., around 50% for anxiety and depression treated by CBT – NICE, 2006; Butler, 2004).

Moreover, besides internal barriers and obstacles related to the general practitioner (family physician) and to the psychotherapist, the chances for an adequate treatment of mental disorders are further reduced by the lack of integration of mental services with primary care settings. In most countries, mental health care system is a **reactive system**; it waits for clients to be correctly identified and referred for treatment. It does not pay any attention to help-seeking behavior of the person in need. There are no pre-established shared responsibilities in mental health care management between the general practitioner and the specialists.

There are major difficulties in knowledge transfer (including lack of an adequate infrastructure) between specialists and family physicians and a reduced support for clinical innovation to supplement existing treatments and address the problem of reduced accessibility. With a specific reference to CMPs, professionals

are more conservatives than clients in using this new technology. For example, more than 90% of British behavioral therapists answered that they would consider using computer-based self-help applications in helping clients, but only 2% were actually using it (Whitfield & Williams, 2004).

To resume, the existent system of psychotherapy is focused on **symptom alleviation**, not on **help-seeking behavior of the person in need**. We have outlined above the consequences: a reactive system, able to offer health improvement only to that minority who overcome all the obstacles mentioned above.

The time is ripe now that CMP should focus on help-seeking behavior for those confronted with mental health problems. We must facilitate clients' efforts to overcome internal barriers, enhance primary care with screening instruments and knowledge transfer, and improve accessibility and know-how of psychotherapists.

Compared to the traditional face-to-face psychotherapy, CMP can bring a substantial added value to the mental health care by actively matching the needs at any stage of help-seeking behavior and offering adequate solutions to remove obstacles. Not only symptoms alleviation, but the whole Odyssey of help-seeking should be the central focus of CMP.

2.   *Reconceptualization of psychotherapy*

Despite an intensive use in the last one hundred years, the term "psychotherapy" is still ambiguous. It has two dominant meanings, denoting: (1) a doctrine (theories, principles and methods) of the psychological treatment; (2) a psychological treatment per se, for mental disorders. The first meaning is used when we talk about "cognitive-behavior therapy", "client-centered psychotherapy", "analytic psychotherapy", "behavior therapy" etc. The second meaning is prevalent when we refer to the set of activities and procedures used by the psychotherapist to improve the mental health of his/her client. Psychological treatment is very much conceived as a medical treatment: there, in the activities and procedures during psychotherapeutic sessions, we should find the "active substance", the factors responsible for symptom alleviation. The patient is the recipient of the psychological treatment (i.e., psychotherapy) that cures him/her, in a similar way as he/she is the recipient of the medication. And, because in any medication treatment there is one or more active substances that produce the change, we should look for the **active factors** in psychotherapy that can account for the client's improvement. Unfortunately, despite the huge amount of research, we are still far from identifying the mechanisms of change in psychotherapy (Kazdin, 2007, 2008; Shedler, 2010) and this is because we look for them in the wrong place. The fact that the therapeutic alliance accounts for a large proportion (about 30%) of the outcome variance says nothing about the mechanisms of change. The alliance itself could be

an outcome of symptom change occurring before the alliance. Thus, we don't know whether alliance occurs before or after (partial) symptom alleviation and we have no hints about the unfolding process: how psychotherapeutic relationship unfolds to produce client's improvement (Kazdin, 2008, 2007). The very same considerations apply even more to those factors which account for even less of the outcome variance: psychotherapeutic technique (15%), characteristics of the client or characteristics of the therapist.

We think that computer-mediated psychotherapy must make a difference between **psychotherapy**, as a psychological treatment and **psychotherapeutic process**. The psychotherapeutic process is an internal process, not an external activity (or set of activities). It is an internal process taking place in the mind of the client; there we should look for the mechanisms of change, not in the psychological treatment. The client is the active agent of change: one operates on the inputs provided by the therapist (techniques, relationship, etc.) or by other sanogenic sources (e.g., informal network of help) to produce mental health enhancement (Bohart, 2000). Just as learning could be promoted by a good teaching, yet learning is different that teaching and can take place without teaching, so the psychotherapeutic process could be facilitated, promoted, by a good psychotherapy, yet it is different than psychotherapy and it can be promoted by many other factors than psychological treatment.

Once considering that the client (i.e., the psychotherapeutic process) is critical, not the psychotherapy, the basic problem of CMP is stated as follow:

> *What kind of resources, in what type of format, provided for which actor involved, catalyze the psychotherapeutic process?*

Adequate resources (knowledge, procedures, feed-backs, interpretation, reinforcements etc.) provided for the appropriate actor (patient, psychotherapist, family physician), in an appropriate format, should be the main commitment of the CMP in the future. What our client does with what we offer is much important than what we offer. What happens in the head of our client, not what we, as therapists, do during the psychotherapeutic session, it is the critical factor for change. The failure to discover the mediators and mechanisms of change in psychotherapy (Kazdin, 2007, 2008; Shedler, 2010), the repeated findings that the efficacy of bona fide psychotherapies are roughly equivalent ("Dodo bird conjecture") (Wampold et al., 1997; Westen et al., 2004), the reduced importance of psychotherapeutic alliance in web-based interventions (Knaevelsrud & Maercker, 2007), the high satisfaction reported by patients who have used CMP and a drop-out rate equivalent to face-to-face therapy (Proudfoot, 2004) constitute additional arguments that we should put not the psychotherapy but the client in the center of our preoccupation.

To conclude, we should create therapeutic designs that enhance psychotherapeutic **process** wherever it occurs: at the patient's home, at the general practitioner premises or in the psychotherapist's office.

3.   *Capitalize on the knowledge accumulated in e-learning*

Although we already have several clinical guidelines on how to use e-mental health solutions (NICE, 2006; ACA, 1999), there is no reference in the literature on how to produce adequate e-contents for those solutions. Most of the existent products on the market are mere digital projections of the classical self-help books, using a similar writing style. We claim that the digital medium and hypertexts are far different than the linear written text: they offer different opportunities, require new writing skills and afford different behaviors from both the producer and the receiver, thus a set of guidelines on e-content creation for e-mental health solutions is critically needed.

In our opinion, the guidelines for writing useful e-contents in psychotherapy or counseling are strongly determined by our answers to four types of questions:

(1) The users

a. What kind of users do you expect for your e-health solution? What characteristics and goals do they have? (What kind of daily routine they have?)

b. What is their expected online behavior?

(2) The relationships

a. What kind of relationships should you develop between your users?

b. How do you build these relationships?

c. What is your role as a psychotherapist and e-content producer at the same time?

(3) The content and format

a. What content is the most effective?

b. What is the most adequate format to communicate the content?

(4) The environment

a. How to create the optimum digital environment in order to support user's goals?

Briefly put, the biggest challenge of the e-content writer for e-mental health solution is the following: *What kind of content, in what format and what environment are needed in order to provide the optimal support for the goals of users?* This conundrum must be addressed beginning with the design phase. However, this should be the reference framework also during implementation, formative evaluation and testing of any e-mental health solution.

Unfortunately, the research on e-mental health solutions is yet in its infancy and unable to provide a sound answer for the stated problem. The guidelines already elaborated are rather general, addressing ethical or clinical standards, with no reference to the design of e-content.

In this context, we claim that a better starting point in answering the questions mentioned above is to capitalize on the know-how already accumulated in e-learning (Miclea, Ciuca, & Miclea, 2008). Our knowledge on e-learning is far more advanced than on e-mental health solutions, due to an earlier start of ICT use in education, especially as a critical tool for the development of distance learning (Mayer & Moreno, 2003; Clark & Mayer, 2003; Kozma, 2001). It is not the first time when progress in a specific area of psychology is promoted by methodological and conceptual transfer from other disciplines. Cognitive psychology, for example, has substantially capitalized on the "computer metaphor" and evolutionary psychology is heavily relying on a range of theoretical and methodological transfers from evolutionary biology. Therefore, we assume that putting together our knowledge about the traditional process of psychotherapy on the one hand, and about e-learning solutions on the other, we may have better chances to generate meaningful guidelines for writing adequate e-contents for e-mental health solutions. The outcome of our efforts to synthesize e-learning with classical psychotherapy is expressed in the guidelines presented in another paper (Miclea, Miclea, & Ciuca, 2008).

CONCLUSIONS

We are at the end of the beginning. Computer-mediated psychotherapy is, overall, at least as effective as classical, face-to-face therapy. Its benefits overcome its costs and it better fits the mind of the coming digital native cohorts. We shortly presented a CMP system – Paxonline, able to promote a stepped-care model in anxiety disorders, and to integrate the efforts of all relevant actors (patient, psychotherapist, family physician) to contribute to the psychotherapeutic process.

Computer-mediated psychotherapy is not only a new tool in our therapeutic armamentarium, but it also has the potential to change our psychotherapeutic practices. It can refocus psychotherapy from symptom alleviation to the optimization of help-seeking behavior; it can produce a switch from the

psychotherapeutic treatment to the psychotherapeutic process inside the patient's mind and it can transfer knowledge from e-learning to psychotherapy.

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