

MIPA-Mobile: Monitoring Psychotherapy with Adolescents using Mobile Applications

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Abstract

Quality of life and well-being have gained increasing importance in psychological assessment and psychological intervention, since research has shown that psychopathology has a negative impact on quality of life and this impact varies in degree and how the impact of the effects themselves is combined (Stevanovic, 2013). In this sense, psychological interventions should not only be aimed at reducing psychopathological symptoms, but also increasing quality of life and well-being (Oliveira, Dias, Gonçalves, & Machado, 2008), assumed to be a mediator between health and spirituality (Oliveira & Junges, 2012).

Over the last years, a remarkable development has been shown in the study of psychotherapy outcome monitoring, defined as a systematic and repeated assessment of psychological variables during the process of psychological intervention; the psychological intervention process may change as a result of feedback from the monitoring process as well (McAleavey, Nordberg, Kraus, & Castonguay, 2012). Outcome monitoring contributes to an individualized intervention with the client, adjusted to real needs.

This work aims to present the MIPA-Mobile project, directed to develop and to test a new model for monitoring psychological intervention with adolescents, based on a computer application, integrating information from different key-informants.

Keywords: Outcome Monitoring, New Technologies, Adolescents.

Outcome Monitoring

Over the last years, a remarkable development has been shown in the study of outcome monitoring in psychotherapy. Outcome monitoring can be defined as a systematic and repeated assessment of psychological variables during the process of psychological intervention; the psychological intervention process may change as a result of feedback from the monitoring process as well (McAleavey et al., 2012). Several monitoring instruments have been developed in order to evaluate the impact of care and to increase the quality of services. The empirical evidence on the clinical usefulness of monitoring processes has helped disseminating their use in different clinical settings. Most monitoring systems are focused on the levels of psychological functioning and on psychological disorders symptoms. All systems use quantitative information, and provide therapists a relatively simple interpretation of the current status of the clients' problems (McAleavey et al., 2012). The repeated use of these instruments has shown to help the intervention process through the analysis of changes on problem areas throughout the intervention time (Lambert, Hansen, & Finch, 2001).

In addition to the clinical advantages of the use of monitoring systems, research on therapeutic change has benefited from the use of such systems, allowing testing and improving change theories, as well as examining different intervention models that are assumed to have different change time patterns (Warren, Nelson, Mondragon, Baldwin, & Burlingame, 2010). In what concerns to child and adolescent psychological intervention, one of the advantages of systematic monitoring is its ability to reduce client drop-out (Baruch, Vrouva, & Fearon, 2009), a largely common situation in psychotherapy with adolescents, occurring in 40 to 60% of cases (Kazdin, 2005). Based on this evidence, the use

of monitoring tools has increased in the child and adolescent population (Bickman, 2008).

The choice of instruments for a monitoring system should take into account the following psychometric properties: general reliability and validity, specific change validity and sensitivity, normative information allowing the comparison of severity and change in symptoms over time (Jacobson & Truax, 1991). Furthermore, the measures should be brief, regularly administered, easily scored, and present high cost-efficacy relation (Kazdin, 2005). The instruments most used for outcome monitoring with children and adolescents are the *ASEBA forms* (CBCL and YSR, mostly); the *Behavior Assessment System for Children-2* (BASC-2; Reynolds & Kamphaus, 2004); and the *Youth Outcome Questionnaire* (Y-OQ; Burlingame, Wells, Lambert, & Cox, 2004). More recently, in order to access information from multiple contexts / informants in outcome monitoring with children and adolescents, the *Brief Problem Monitor* (BPM; Achenbach, McConaughy, Ivanova, & Rescorla, 2011) was developed, based on items of the ASEBA battery.

Quality of Life, Wellbeing and Spirituality

The World Health Organization (WHO, 1996) defined quality of life as the subjective perception of the individuals over their position in life and their relationship with the standards, objectives, expectations and concerns in the context of their culture and value system. Endicott, Nee, Yang and Whollberg (2006) addressed the concept of quality of life in terms of well-being and satisfaction, defining how the degree to which individuals experience pleasure and satisfaction. In this sense, evaluation of quality of life through psychological

assessment instruments can be an advantage to monitor the process and results of the development of psychotherapeutic intervention.

The concepts of quality of life and well-being have gained increasing importance both in terms of psychological assessment, and psychological intervention, since research has shown that psychopathology has a negative impact on quality of life. In this sense, psychological intervention should not only be aimed at the reduction of psychopathological symptoms, but also at increasing quality of life and well-being (Oliveira et al., 2008).

Parallel to the interest in quality of life and well-being, psychology has turned to the study of spirituality and its relationship to health mental, psychological well-being and bio-psycho-social integration (Oliveira & Junges, 2012). Therefore, it is expected that well-being may work as a mediator between health and spirituality (Oliveira & Junges, 2012).

Paper and pencil methods vs. new technologies in psychotherapy monitoring

Mental health professionals often experience difficulty with adherence to therapeutic activities of adolescents (Offer, Howard, Schonert, & Ostrov, 1991). This is particularly observed among psychotherapeutic sessions when clients are asked to carry out activities at home for which the development of materials on the progress of sessions or on the assessment of emotional states and behaviors between sessions are required. The use of electronic platforms is related to a greater involvement and accessibility of activities and therapeutic materials (Matthews, Doherty, Sharry, & Fitzpatrick, 2008). Adolescents find the use of new technologies particularly attractive, providing a greater and more continued

access to their personal data and to the activities and therapeutic materials, representing therefore, one promising way to increase commitment throughout the process (Matthews et al., 2008).

The most used method for assessing clinically relevant variables between psychotherapy sessions is the traditional "paper and pencil" approach. However, this approach presents several limitations: it is associated to low levels of commitment by the individual (Feldman et al., 2001); instruments are responded in a retrospective way and do not represent the actual events as they occur, presenting a high risk of providing distorted representations of reality (Shiffman, Hufford, Hickcox, Paty, & Kassel, 1997); privacy related to responding to instruments is reduced (Matthews et al., 2008).

The use of electronic applications, in turn, provides advantages compared to the traditional method: they provide a higher quality of the information collected, by allowing responses in "real-time"; and they reduce the need for therapists to make judgments about the validity of the information (Bauer, Rasgon, Grof, Gyulai, & Glenn, 2005). Internet-connected electronic applications can be used to send information to a secure location, which then becomes accessible to professionals during the session (Matthews et al., 2008).

New Technologies

Over the past decades, technology has evolved rapidly, allowing the progressive use of technological applications in psychotherapy processes (Newman, 2004). The increased availability of information and communication technology has opened up new prospects for prevention, self-help and treatment of mental disorders. Additionally, these options have led to new ways of

assessing relevant symptoms, attitudes and behaviors, both in the clinical setting and in regular everyday contexts. With these systems it is possible to obtain effective and efficient longitudinal data in reduced time intervals (e.g. daily or weekly). Such assessments significantly increase the knowledge that the therapist has about the process of the development of symptoms and recovery, allowing a detailed description of the evolution of symptoms over time (Bauer & Moessner, 2012).

Psychological interventions that use new technologies are particularly attractive to adolescents, who tend to present large familiarity and competence with computers and other electronic devices. Specifically, mobile phones have gained significance in the emotional life of individuals and consequently increased their potential for use in psychological services. Their accessibility and near ubiquity enable the enrichment of assessment and intervention practices with contextual and daily customer information. Another advantage related to the use of mobile devices in psychological assessment and intervention is its potential to reduce stigma associated with mental health care and to decrease barriers in help seeking behavior; furthermore, the use of technology seems to promote compliance in completing the exercises proposed by the therapist between sessions (Morris & Aguilera , 2012).

Preziosa, Grassi, Gaggioli, and Riva (2009) identified five benefits related to the use of mobile phones in clinical practice: 1) mobile phones are the most widespread technological equipment; 2) the advanced multimedia features of smartphones, together with the quick and easy interactive internet connection, increase the adherence of individuals to intervention, allowing clients to transfer the skills acquired in the therapeutic context to their daily lives; 3) mobile phones

ensure the availability of information anytime, anywhere, enabling conducting assessments in the natural context of the individual; 4) the regular use of these devices helps individuals to accept the use of mental health mobile applications; 5) high speed internet connection provides an easier access from therapists to clinically relevant information.

MIPA-Mobile

The MIPA-Mobile system was designed to be a flexible and accessible tool for conducting psychotherapy monitoring processes with adolescents, based on regular assessments of psychopathological symptoms (using different informants, such as parents, adolescents, and teachers), adolescents' subjective well-being and perception of working alliance during psychotherapy.

MIPA-Mobile allows a flexible definition of assessment protocols for each individual case. In each case, after planning the protocol, informants are contacted by e-mail in order to access the online questionnaires, using different access platforms (web browser on desktop platforms, tablets and smartphones), after sessions, based on secure data transfer processes.

The application includes an integrated management data module, based on a secure server, allowing the research team to export data from the application directly to the data analysis software.

MIPA-Mobile includes the following assessment instruments:

Brief Problem Monitor (BPM; Achenbach et al., 2011). BPM is an assessment instrument that aims to monitor children and adolescents' behavioral and emotional problems and responses to interventions. The BPM can also be used to compare the responses of children facing different interventions and

control conditions. BPM is especially useful for monitoring the evolution of an intervention for the following reasons: it is a short questionnaire (i.e. taking around 1-2 minutes to fill); can be filled out by different informants; can be re-administered at predefined time intervals; and displays the trajectories of the scales, as well as the classification of particular items. BPM has specific forms for different informants: BPM-P was developed for parents, family members, institutional caregivers; BPM-T may be used by teachers and other school staff members; and BPM-Y was developed for adolescents aged between 11 and 18 years. BPM includes items to assess internalizing problems, externalizing problems and attention problems. The sum of all items provides a total problems scale score.

Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire

(QPBSQ; Endicott et al., 2006; Portuguese version by Oliveira et al., 2008). The QPBSQ, originally *Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire* (PQ-LES-Q), was developed by Endicott et al. (2006). It is a 15 items self-report instrument designed to assess, on a regular and systematic way, important aspects of subjective experience of quality of life satisfaction of children and adolescents.

Working Alliance Inventory for Children and Adolescents (WAI-CA;.

Figueiredo, Dias, Lima, Raposo, & Lamela, nd). The WAI-CA is based on the Working Alliance Inventory (WAI), developed by Horvath and Greenberg (1989), for assessing therapeutic alliance in adults. WAI-CA's items are adapted versions of the WAI items, designed to meet children and adolescents' developmental

characteristics. Its 36 items are organized into three scales (12 items each): 1) Goals; 2) Tasks; 3) Bond.

Data Collection:

The data collection followed two stages:

1. Qualitative interviews to therapists: Prior to the construction of the mobile application, interviews were conducted with therapists who work with adolescents, in order to perform a requirements analysis. The main topics of the interview script were: management of clinical processes (this topic had as main objective to access the bureaucratic procedures and management of each clinical setting, allowing the characterization of the admissions process, psychological assessment, psychological intervention, psychotherapeutic monitoring and process conclusion); new technologies in psychology (this topic had as main objective to access the perceptions of therapists regarding the use of new technologies in psychology); and advantages and anticipated constraints regarding the integration of new technologies in psychotherapeutic monitoring.

2. Data collection via the mobile application: The Portuguese National Commission on Data Protection and the Ethic Committees of all clinical institutions authorized the study. Data collection is ongoing in several clinical settings. Informed consent is obtained by both parents and adolescents. The sample selection criteria are: adolescents aged between 12 and 17 years; referred for psychological intervention/psychotherapy; living with at least one parent. Exclusion criteria: conditions that make it impossible the achievement of self-report of adolescents (e.g. psychosis); absence of technological equipment.

Data Analysis:

Data analyses will follow four stages:

- 1) Time series analysis for all cases, using the information collected from all informants who participated in the monitoring process;
- 2) Client's data comparison with normative data for all instruments;
- 3) Analysis of compliance rates and subsequent comparison with dropout rates of clinical settings;
- 4) Qualitative analysis of data from the interviews, using a semi-inductive content analysis procedure.

Conclusion

The main goal of the MIPA-Mobile project is to develop and to test a new model for monitoring psychological intervention with adolescents, based on a mobile internet application, integrating information from different key-informants.

This project aims to overcome problems related to the traditional approaches to the monitoring of psychological interventions with adolescents, using multiple time points, integrating multiple measures and multiple informants. Traditionally, the assessment of relevant variables for outcome monitoring is focused on measures of symptoms and /or well-being, and the inclusion of process measures (e.g. working alliance) is not common; furthermore, monitoring is usually conducted using paper/pencil instruments, implying time and material resources that often jeopardize its implementation.

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