CLAIMS

1. A computerized method for non-revealing monitoring and processing of behavioral and/or mental state related information corresponding to a patient, the method comprising:

(1) providing a patient computing device controlled by the patient, the patient computing device comprising a processing unit comprising integrated circuitry and coupled to each of a memory, a set of input / output devices configured for providing a user interface, and a data communication unit, wherein the memory stores program instruction sets executable by the processing unit including program instruction sets corresponding to each of: (a) a patient behavioral and/or mental health management application program executable by the processing unit, which when executed provides visual or graphical interfaces by which the patient can interact with the patient computing device for self-management of their behavioral and mental health, and selectively communicate with devices and systemsexternal to the patient computing device; (b) a set of patient behavioral / mental health variable monitoring modules, which when executed perform numerical / statistical operations upon patient behavioral, physiological, and/or mental health data; (c) a set of patient behavioral and/or mental health anomaly detection modules, which when executed perform anomaly detection operations in accordance with one or more machine learning or artificial intelligence models by which patient behavioral and/or mental health anomaly conditions can be automatically detected or recognized; (d) a behavioral therapy automaton; and (e) a data communication manager configured for managing or controlling data communication between the patient computing device and external systems, external devices, and data communication networks;

(2) providing a set of patient behavioral and/or physiological parameter monitoring elements, each of which is configured for generating data correlated with the patient's behavioral and/or physiological state at a particular time or during a particular time period, whereinthe set of patient behavioral and/or physiological parameter monitoring elements comprisesone or more electronic or computing devices configured for data communication with the patient computing device, and/or patient computing device hardware and/or program instruction sets;

(3) initiating execution of the patient behavioral and mental health management application program;

(4) receiving patient input by way of the set of input / output devices and establishing a set of patient data communication permissions that indicates types of patient behavioral and/or mental state information locally resident on the patient computing device that the patient computing device is permitted to communicate to destinations external to the patient computing device;

(5) automatically monitoring patient behavioral and/or physiological parameters over a first time period and generating corresponding first patient behavioral and/or physiological parameter data by way of the set of patient behavioral and/or physiological parameter monitoring elements;

(6) automatically processing the first patient behavioral and/or physiological data to determine a patient behavioral and/or mental health baseline state correlated with the first patient behavioral and/or physiological parameter data;

(7) automatically monitoring patient behavioral and/or physiological parameters over another time period and generating corresponding additional patient behavioral and/or physiological parameter data by way of the set of patient behavioral and/or physiological parameter monitoring elements;

(8) automatically processing the additional patient behavioral and/or physiological parameter data relative to the patient behavioral and/or mental health baseline state and determining whether a patient behavioral or mental health anomaly condition exists, including:

(a) jointly processing:

(i) patient sleep-related parameters for a current sleep observation period compared to what was learned to be typical for this patient for a prior sleep observation period;

(ii) patient mobility parameters for a current mobility observation period compared to what was learned to be typical for this patient for a prior mobility observation period, wherein the patient mobility parameters include a sample mean of time away from an average home location, and a radius of gyration travelled from the average home location for a current observation period, wherein the home location is defined as an average of locations at which the patient was found most often at times between 02:00 and 06:00 hours on weekdays according to their local time zone, and the radius of

gyration is defined as a maximum distance travelled from a centroid of the home location during the current observation period; and

(iii) patient sociability parameters for a current sociability observation period compared to what was learned to be typical for this patient for a prior sociability observation period, wherein the patient sociability parameters include call and texting/messaging in-degree, out-degree and reciprocity parameters; and

(b) identifying whether a multiple variable behavioral or mental health anomaly condition exists corresponding to jointly processing (i) the patient sleep-related parameters, (ii) the patient mobility parameters, and (iii) the patient sociability parameters,

by way of a deep learning model executing on the patient computing device;

(9)in response to the existence of a patient behavioral or mental health anomaly condition, automatically:

(a) estimating or determining a severity level corresponding to the anomaly condition, including in the event that a multiple variable behavioral or mental health anomaly condition exists, determining whether the multiple variable behavioral or mental health anomaly condition is an alarm-generating double variable anomaly condition among single variables or a non-alarm generating double variable anomaly condition among single variables;

(b) initiating execution of the behavioral therapy automaton and performing an automated behavioral therapy process based on the patient anomaly condition;

(c) initiating execution of an automated patient dialog process that operates only on the patient computing device, without transfer of patient data and/or patient-identifying data external to the patient computing device; and

(d)

determining by way of the deep learning model whether the patient behavioral or mental health anomaly condition is a recurring patient behavioral or mental health anomaly condition, which the patient recurrently experiences over time; and

(10) after determining that a recurring patient behavioral or mental health anomaly condition exists, automatically:

(a) estimating a next recurrence time period; and

(b) adjusting or updating the behavioral and/or mental health prescription by way of

selecting additional or other behavioral therapy chatbots that the patient can use to address particular behavioral and/or mental health issues associated with their most-recent and/or historical behavioral or mental health anomaly conditions,

wherein the patient computing device is configured for performing each of (5) through (10), including by way of (a) purely local analyses and processing of privacy-sensitive patient data, and (b) avoiding or preventing the transmission of privacy-sensitive patient data outside of the patient computing device.

2. The method of claim 1, further comprising automatically: repeating performing (7) through (10); and updating the patient behavioral and/or mental health baseline state over time based on one or more sets of additional patient behavioral and/or physiological parameter data.

3. The method of claim 1, wherein the set of patient data communication permissions pre-approves transfer of at least some types of anonymized patient data external to the patient computing device, and wherein the method further comprises: automatically generating anonymized patient behavioral and/or mental health data correlated with at least portions of one or more sets of additional patient behavioral and/or physiological parameter data; and communicating the anonymized patient behavioral and/or mental health data to a remote computer system or remote data store associated with a behavioral and/or mental health care provider or care provider team for the patient in accordance with the set of patient data communication permissions.

4. The method of claim 2, further comprising:

presenting the patient with one or more behavioral and/or mental health surveys and/or questionnaires and receiving patient survey and/or questionnaire input corresponding thereto by way of the set of input / output devices;

automatically processing the patient survey and/or questionnaire input and determining a current patient behavioral and/or mental health profile; and

based on the processed patient survey and/or questionnaire input, automatically downloading one or moreof the set of patient behavioral / mental health variable monitoring modules, the set of patient behavioral and/or mental health anomaly detection modules, the behavioral therapy automaton, program instruction sets corresponding to a behavioral and/or mental health prescription, and one or more electronic behavioral and/or mental health lessons from a set of remote computing systems associated with a behavioral and/or mentalhealth care provider for the patient.

5. The method of claim 4, wherein the set of patient behavioral and/or mental health anomaly detection modules is seeded to establish what is normal, what is normal variability, and what is anomalous for a group of individuals.

6. The method of claim 4, wherein the behavioral and/or mental health prescription comprises:

a set of program instructions and/or a script executable by the processing unit, which establishes a sequence of automated behavioral therapy activities and/or electronic lessons in which the patient is to engage, and corresponding schedules for the automated behavioral therapyactivities and/or electronic lessons; and optionally

data, images, and/or videos corresponding to an exercise, dietary, and/or medication protocol thatthe patient is to follow.