Executive summary

Internet is unquestionable one of the greatest achievements over the last years and its use is widespread. Given this widespread use, it comes without any surprise that – as with any other behaviors – some individuals may overuse it or use it in an inadequate or problematic way. Already at least 20 years ago, clinically relevant cases of Internet use became apparent and a term for a new clinical disorder "Internet addiction" emerged.

Since then research on the topic has dramatically increased. However, there seems to exist a multitude of terms used to study the phenomenon. Terms used are ‘‘Internet addiction, ’’Internet dependency", "hyperconnectivity", "cyberaddiction", "virtual addiction", or "compulsive’’, ‘‘problematic’’, "excessive" and ‘‘pathological’’ Internet use.

The inflationary and often interchangeable use of different terms has not helped the field, but blurred two conceptionally different assumptions: Internet use that may result in a clinically independent disorder versus Internet use resulting in consequences without being a disorder. In addition, there is no internationally or even nationally agreed consensus whether an Internet use disorder exists, or whether it is just a maladaptive behavioral pattern, i.e. a problematic use.

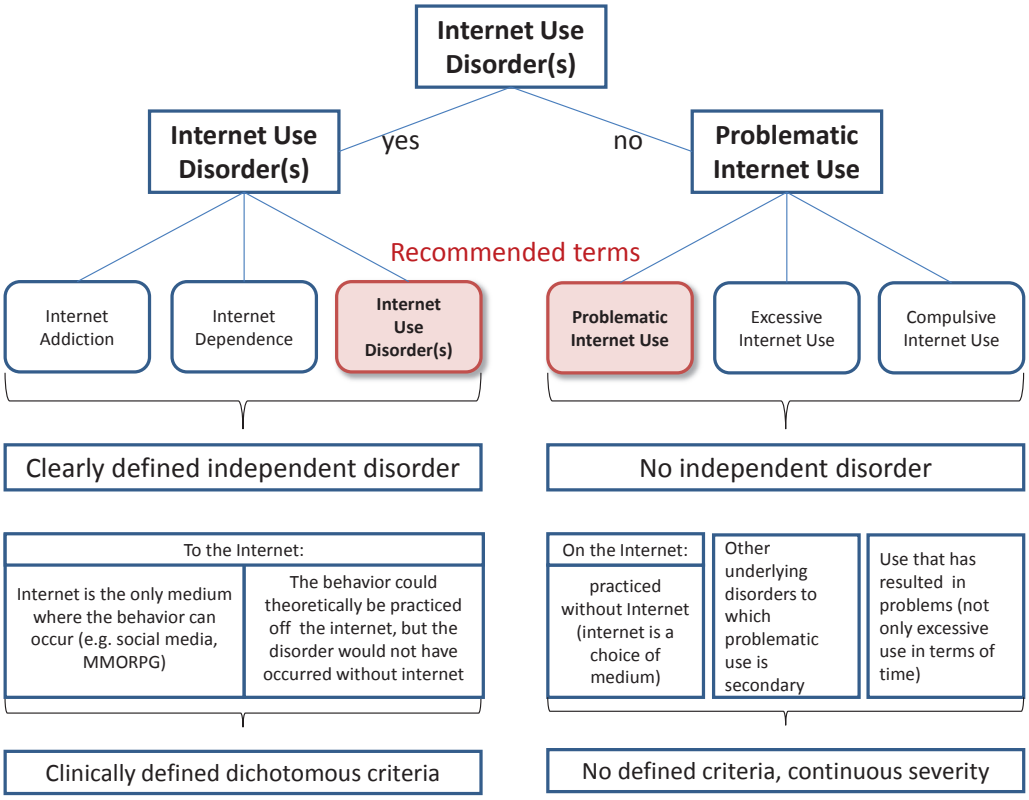
Therefore, the present report was mandated by the Federal Office of Public Health. Its major aim is to come up with two working definitions for Internet addiction on the one hand and problematic Internet use on the other. In addition two further tasks were: a) To review the literature to identify the most common used instrument to assess Internet use disorder (or problematic Internet use), and b) to compare the Compulsive Internet Use Scale (CIUS) and the Internet Addiction Test (IAT) as the most widely used instrument in Switzerland with the other most commonly used instruments as regards their utility in Swiss Health Surveys.

Two distinct concepts

Many studies have indicated that some Internet users show clinically relevant signs of an addiction, supported even by neurobiological research. Nevertheless, it is still a debate whether something like an Internet addiction exists at all, whether there a other underlying disorders (schizophrenic disorders, borderline, mood disorders, or personality disorders) to which "addictive" Internet use is secondary, or whether there are behavioral addictions (sex, gaming, shopping addictions) which would also exist without the Internet and where the Internet is just the preferred medium to meet the demands. In other words: is there an independent clinical diagnosis of Internet addiction (addicted TO the internet), or more general behavioral addictions (or disorders), which are mostly satisfied with the medium Internet (addicted ON the Internet)? Finally, some researchers deny the existence of an Internet addiction, and only assume that there can be problematic Internet use that may lead to consequences.

The present suggestions for working definitions therefore distinguish between an independent clinical disorder, which we call Internet Use disorder (IUD), on the one hand, and problematic Internet use (PIU) on the other. PIU may occur a) alone or be b) a (secondary) part of other mental disorders, or c) may occur because the Internet is the main medium to satisfy a behavioral addiction. Central for PIU, however, is that it results in negative behavioral, psychosocial or physical consequences. PIU should not be used if IUD is diagnosed.

Figure 1 Conceptualization of working definitions of Internet Use Disorder (IUD) and Problematic Internet Use (PIU)



Working definition for Internet use disorder

Currently, gambling disorder (GD) is the only accepted behavioral addiction in the *diagnostic and statistical manual of mental disorders* (DSM-5®). As regards potential Internet disorders, only Internet gaming disorder (IGD) was added to the DSM-5, however not as an accepted disorder but under the category of potential disorders needing further research and clinical experience prior to consideration for inclusion as an official disorder (i.e. placed in the research appendix of DSM-5). Therefore, common definitions of a generalized "Internet addiction" are based on definitions for gambling disorder (or before DSM-5 pathological gambling), the suggested Internet gaming disorder, or adapted criteria for substance use disorders or impulse- control disorder (pathological gambling was defined as an impulse-control disorder in the precursor of DSM-5). Many of these criteria are overlapping.

We identified seven key criteria for the diagnosis of an Internet use disorder (IUD), which led to the following working definition:

Working definition Internet Use Disorder

Internet Use Disorder is an ESSENTIAL persistent and recurrent Internet usage leading to clinically significant impairment or distress, as indicated by the individual with exhibiting four* of the following 7 criteria for an excess of at least 3 months**:

1. **Preoccupation** with the Internet. Preoccupation is a cognitive process to be distinguished from transient enthusiasm while being on the internet. The individual must be thinking about Internet use not only while being on the Internet but also during times of being offline, with excessive thoughts about Internet use occurring throughout the day. For individuals Internet use is central to their lives. They think about previous online activity or anticipate next online session.
2. **Withdrawal,** as manifested by a dysphoric mood, anxiety, irritability, sadness and boredom. Withdrawal symptoms must be distinguished from emotions that arise in response to an external force preventing or stopping an Internet episode. Withdrawal refers to symptoms that arise when one is unable to initiate the use of the Internet for a certain period, and/or when one is purposefully trying to stop Internet use.
3. **Tolerance**, as manifested by a marked increase in Internet use required to achieve satisfaction, or reduced satisfaction when using it the same time.
4. **Impaired control** manifested in unsuccessful attempts to control, cut back or discontinue Internet use with a persistent desire to do so. The criterion also reflects a tendency to relapse.
5. **Continued excessive use of Internet despite knowledge of persistent or recurrent physical, but mostly psychosocial negative consequences (functional impairment).** Consequences should be clinically relevant not only single periods of insufficient sleep or delayed homework. Consequences include
   a) persistent and recurrent neglect of major roles,
   b) clinically significant health effects (e.g. sleeping problems),
   c) jeopardized or lost important relationships,
   d) jeopardized or lost work, educational or career opportunities, including Internet use being a barrier to seek such opportunities.
6. **Loss of interests** in previous hobbies, entertainment as a direct result of, and with the exception of, Internet use leading to deprived social interactions, loneliness and social isolation.
7. Use of the Internet to **escape or relieve** a dysphoric mood (e.g. feelings of helplessness, guilt, anxiety). Internet use to escape adverse moods should be distinguished from use to avoid withdrawal symptoms, because some withdrawal symptoms have overlap with adverse moods. This criterion refers to Internet use in response to feelings of sadness, depression or anxiety that arise from personal situations largely unrelated to Internet use.

Exclusion criterion:
Excessive Internet use which is better accounted for as a secondary symptom of other primary mental disorders
*Currently there is no suggestion for the number of criteria that should be met, we recommend using four
** Three months were suggested by Tao et al. (2010); standard definitions would refer to the occurrence in the past 12 months

Working definition of problematic Internet use

Most researchers in the field agree on two main aspects of problematic Internet use, namely a combination of both cognitive preoccupation (i.e., thoughts about Internet use that are experienced as irresistible) and individual's inability to control their Internet use, which in turn leads to feelings of distress and functional impairment of daily activities.

We suggest the following working definition:

Working definition Problematic Internet Use

1. PIU is a dysfunctional, purposeful and repetitive habit pattern which is expressed by cognitive preoccupation and has resulted in negative, behavioral, psychosocial or physical consequences (e.g. at home, work or school, inhibiting academic performance, damaging health). It may contain aspects of impaired control, tolerance or withdrawal, but central are developed negative consequences.
2. It is a gradual concept with continuously increasing severity (dimensional construct), not a diagnosis with a defined cut-off (dichotomous categorical construct).
3. Underlying other behavioral "addictions" (sex, gaming, shopping), other mental disorders for which the Internet is the choice of the medium or problematic Internet use is a symptom are included, but the diagnosis of Internet Use Disorder is not met.
4. Only nonessential computer/Internet usage (i.e., nonbusiness- or nonacademic-related use) should be evaluated.

Important is that we see PIU as a gradual concept of severity with mild forms but also very severe forms (e.g. with underlying behavioral addictions). Unfortunately, there is no commonly agreed assessment instrument. Therefore there are also no commonly agreed cut-offs for mild, medium or severe PIU.

Instruments in the field

There is an increasing number of instruments to assess problematic Internet use. We compared eight of the most widely used and came up with the following conclusion:

Currently, there are many different instruments measuring "problematic Internet use". Even if the names of the instruments refer to addiction, they actually do not measure all dimensions of a potentially distinct clinical disorder. Most instruments use Likert scales with undefined cut-offs when a criterion (dimension) is met. Thus, they do not allow a diagnosis of an Internet use disorder, where a certain number (e.g. 4 or 5) of criteria must be met. Hence, most instruments measure more or less the severity of problematic Internet use.

We therefore conclude that basically all instruments assess "only" problematic Internet use.

Where should we go?

As regards Internet Use disorder, there is the need to come up with consent whether a generalized Internet use disorder exists or whether there are – if at all – only specific Internet use disorders (Internet gaming disorder, Internet shopping disorder, etc.). As a second step, international working groups such as for DSM-5 must be installed to define the criteria for these disorders (generalized and specific). For assessment instruments using rating scales, a cutoff for each criterion (item) must be set based on psychometrical testing with a clinical gold standard (e.g., on a five point scale from 1 to 5, is the criterion met with a value of 3 or more, 4 or more, or 5?).

As regards the problematic Internet use path (but also for the disorder path), the existence of consequences is an important criterion. Therefore, clear standards need to be defined, when something qualifies as a consequence. For example, is criticism by parents already signaling a "consequence" or just reflects the nagging of an older generation, which had a different socialization into a relatively new medium or a lower competence to use this medium.

For the development and use of assessment instruments a convergence towards a single preferred instrument would be desirable. However, more urgently needed would be psychometrically derived (and clinically validated) score levels indicating different degrees of severity. For example, it still lacks a validation study for e.g. a cut-off of 28 for the CIUS. In addition, more comparative research with the same instrument is needed to see whether "problematic use" has similar meanings in different countries.

Thus, more international convergence in agreed criteria and items is needed to reduce the extreme variability in concepts, dimension and assessment instruments in order to foster internationally comparative research and thus strengthen research finding on what is problematic Internet use. This will help to develop preventive strategies.

Zusammenfassung

Zweifelsfrei ist das Internet eine der grössten Errungenschaften in den letzten Jahren und sein Gebrauch ist weitverbreitet. Bei einer solchen weiten Verbreitung ist es nicht überraschend – wie auch bei anderen Verhaltensweisen – dass einige Personen es übermässig nutzen oder es unangebracht oder problematisch nutzen. Bereits vor mehr als 20 Jahren wurden klinisch relevante Fälle augenscheinlich und der Begriff für eine neue klinische Störung namens "Internetsucht" entstand.

Seit dieser Zeit nahm die Forschung auf diesem Gebiet dramatisch zu, wobei jedoch auch eine Vielzahl unterschiedlicher Begriffe für dieses Phänomen entstanden. Es werden Begriffe verwendet wie ‘‘Internetsucht’’, "Internetabhängigkeit", "Hyperkonnektivität", "Cybersucht", "virtuelle Sucht", bzw. "kompulsiver’’, ‘‘problematischer", "exzessiver" und ‘‘pathologischer’’ Internetgebrauch.

Die inflationäre und häufig austauschbare Verwendung verschiedener Begriffe war dem Forschungsfeld nicht zuträglich, sondern verschleierte zwei konzeptionell unterschiedliche Annahmen: einem Internetgebrauch, der in eine klinisch relevante, unabhängige Störung mündet, bzw. ein Gebrauch, der zu negativen Folgen führt, ohne dass es dabei zu einem klinisch diagnostizierbaren Störungsbild kommt. Darüber hinaus gibt es weder national noch international