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The imperative of integrating empirical and theoretical considerations when developing policy responses to Internet-gaming disorder

Commentary on: Policy responses to problematic video game use: A systematic review of current measures and future possibilities (Király et al., 2018)

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This commentary proposes an integrative approach of theoretical and empirical considerations when developing policy responses to Internet-gaming disorder and when evaluating their efficacy. It complements the overview by Király et al. (2018) about preventive and treatment programs by referring to a lack of inclusion of internal factors, such as individual aspects and cognitions, and missing empirical evidence. This commentary claims the integration of current research addressing individual predisposing and maintaining factors in order to evaluate existing programs and to enhance the exchange between actors including policy. This integrative approach has the potential to develop successful preventive strategies, which could be implemented realistically and socially responsible.

Keywords: Internet addiction, behavioral addictions, addictive behaviors, treatment, self-regulation, gaming

The article by Király et al. (2018) entitled "*Policy responses to problematic video game use: A systematic review of current measures and future possibilities*" addresses very important and up-to-date issues regarding the pathological use of online or video games. The authors give an excellent overview about recently published data on policy responses to gaming disorder in different countries and summarize available data with respect to the evaluation of policies' efficacy, as far as empirical data exist. The authors discuss the findings of their systematic literature search and spice the discussion up with their personal opinions.

Policy responses are very important in the context of potential prevention and treatment strategies with respect to the growing phenomenon of Internet-use disorder in general and Internet-gaming disorder (IGD), in particular. With including IGD in Section III in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2013) and the inclusion of gaming disorder in the International Statistical Classification of Diseases and Related Health Problems (ICD-11; World Health Organization, 2018), the problematic behavior gains lots of attention in research and practice. Especially, the classification of gaming disorder as behavioral addiction will have major impact on the diagnostics and could improve treatment as well as prevention strategies (Mann, Kiefer, Schellekens, & Dom, 2017). Király et al. (2018) argue that the prevalence of gaming problems resulted in the development of preventive programs, with the goal of regulating gaming content and accessibility. We agree that policy responses particularly address consumer protection in terms of, for example, limiting accessibility to gaming. We argue that policy responses should also consider media-use education as well as prevention and treatment of IGD including financing of adequate campaigns as well as advanced training for teachers and other professionals working in the educational or clinical setting.

Király et al. (2018) correctly summarize that previous research has particularly addressed potential symptoms and components of IGD, epidemiology, diagnostic, comorbidities as well as potentially underlying mechanisms of the development and maintenance of an IGD, such as using motives (King & Delfabbro, 2014; Kuss & Griffiths, 2011; Van Rooij, Schoenmakers, Vermulst, Van den Eijnden, & Van de Mheen, 2011). However, the authors should also have commented on the existence of theoretical models that have integrated previous empirical findings and that summarize the psychological processes, which are most likely involved in the development and maintenance of IGD. Examples for such theoretical models are the one by Dong and Potenza (2014) and the I-PACE model by Brand, Young, Laier, Wölfling, and Potenza (2016).

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These theoretical models not only summarize and integrate previous findings, but also provide a theoretical basis for developing prevention and intervention methods and other policy strategies (see, e.g., the article by Young & Brand, 2017 in which theoretical arguments and therapy approaches have been merged).

Király et al. (2018) comprehensively argue that there is an increasing need to discuss possible prevention as well as treatment programs to counteract this rising clinical phenomenon. This is consistent with the current review by King and Delfabbro (2017) illustrating the relevance of treatment and early prevention such as educational training settings in the context of IGD. One approach of prevention is to address structural mechanisms of an online game and the environment of gamers as well as to emphasize the responsibility of the gaming industry (Davies & Blake, 2016; King et al., 2017; Van Rooij, Meerkerk, Schoenmakers, Griffiths, & Van de Mheen, 2010). Király et al. (2018) summarize different approaches of these policies: (a) limiting availability, (b) reducing harm and risk, and (c) providing help services for gamers. These approaches commonly have the aspect of regulating the usage of online games exogenously, which overall seem not to be as effective as expected or could not be evaluated empirically. The authors also criticize that most of the mechanisms are focusing only on specific aspects (e.g., shut down systems, fatigue systems, or limiting gaming time). In addition, gaming time is only one potential outcome variable, which is important, but which is not the only measure for a successful strategy (King & Delfabbro, 2017; King et al., 2017). As mentioned briefly by Király et al. (2018), it describes a problem of outcome measures that are adequate for evaluating the efficacy of policy responses to IGD. Beyond gaming time, further factors and symptoms of IGD are relevant when considering potential preventive mechanisms (Demetrovics & Király, 2016; Griffiths, 2010; Király et al., 2018). It is important to address the question of cognitive control over gaming, which is not necessarily represented by the time spent for gaming. The control over the gaming behavior also includes situational factors as well as the question, if important obligations are neglected or not. Having said that there is also another issue that has been mentioned only implicitly by Király et al. (2018) and that is the fact that the studies evaluating the efficacy of policy responses to IGD do not clarify which aspects of an intervention or policy strategy tap into which psychological mechanism. Therefore, it is very important to systematically analyze the effects of each approach on diverse outcome measures and how the efficacy of such approaches is related to or interacts with individual variables.

We agree with the conclusion about the need of an "integrative approach" (Király et al., 2018, p. 1) and complement it by arguing that there are much more ideas on how to regulate gaming behavior, both externally and using self-regulation-enhancement strategies. The development of new strategies as well as the integration of existing strategies or single prevention and treatment techniques should be embedded in the state-of-art theoretical and empirical context. Using the aforementioned models (Brand et al., 2016; Dong & Potenza, 2014), it becomes evident that also strategies in the educational setting that focus on training of media-use competences of adolescents can be worth investigating (Stodt, Wegmann, & Brand, 2016). One example is the self-regulated and controlled use of games (or even other applications) in combination of reducing the aspect of preoccupation with games (e.g., the symptom of thinking or fantasizing about the game when not having the chance to game). Another aspect is to address approach tendencies and to reduce cue reactivity and craving using cue-exposure techniques, which overall reduces the risk to experience the urge to play online games (Young & Brand, 2017). In conclusion, we argue that beyond structural characteristics of an online game, personal characteristics and individual reactions toward games should be considered more intensively when thinking about policies. This could be done, for example in the school context, using mindfulness techniques, emotion regulation strategies, and functional coping strategies to deal with daily hassles instead of using games (e.g., Bargeron & Hormes, 2017; Laconi, Vigouroux, Lafuente, & Chabrol, 2017). Given that different empirical studies have already emphasized that individual factors are involved in IGD, these aspects should be considered more consistently in the development of prevention and intervention strategies. Examples for these aspects are personality (Caplan, Williams, & Yee, 2009; Chiu, Lee, & Huang, 2004; Kim, Namkoong, Ku, & Kim, 2008; Kuss, 2013; Peters & Malesky, 2008), executive functions and inhibitory control (Dong, Lu, Zhou, & Zhao, 2010; Sun et al., 2009; Zhou, Yuan, Yao, Li, & Cheng, 2010), sensitivity toward gaming-related cues (Dong, Hu, & Lin, 2013; Ko, Liu, Yen, Chen, et al., 2013; Ko, Liu, Yen, Yen, et al., 2013; Ko et al., 2009; Liu et al., 2017; Zhang et al., 2016), decision-making style (Pawlikowski & Brand, 2011), and gaming motives (Demetrovics et al., 2011). Naturally, we cannot develop personal strategies for all the individual gamers. It might make sense to think about clusters of prevention and intervention techniques, dependent upon different types of gamers. Knowing a pattern of certain personality traits of gamers in combination with motives, coping style, expectancies, and the level of inhibitory control and approach tendencies, to name only a few of the important individual components involved in IGD, should help to create more individualized and modular training protocols.

As a first step, it could be relevant for regulating Internet-gaming behavior to integrate personal and cognitive aspects and intrinsic motivations to enhance the sensitivity and availability of IGD symptoms. For example, parents and educators get a differentiated picture of this phenomenon and become aware of their possible example for society or role model for adolescent gamers. The combination of increased sensitivity, the exchange with parents and educators, as well as the perception of their role model could be combined with the structural possibilities of an online game to implement subjective mechanisms of self-limitation. This reflective behavior could also be a result of the strengthening and training of subjective competences and skills, which includes emotional and social competences as well as Internet literacy such as the self-regulation of one's own online behavior. Stodt et al. (2016) illustrate that specific Internet-literacy factors such as self-regulation and critical reflection of one's own Internet use work as preventive mechanisms regarding pathological Internet use. In line with their findings,

Muusses, Finkenauer, Kerkhof, and Righetti (2013) and Spada (2014) showed that impaired self-regulation is associated with symptoms of Internet-use disorder. In addition, former studies have already emphasized the relevance of cognitive factors for IGD as well as the importance of healthy coping strategies (Dong et al., 2010; Pawlikowski & Brand, 2011; Sun et al., 2009; Young & Brand, 2017; Zhou et al., 2010). Therefore, changeable variables and the teaching of individual skills could be a promising approach toward a functional Internet-gaming behavior.

As a second step, this approach also considers subjective user motives and expectancies toward the games such as experiencing gratification of individual needs online. Brand, Laier, and Young (2014) and Wegmann, Stodt, and Brand (2015) illustrate that expectancies toward the Internet to gain positive emotions or to distract from problems are associated with a generalized, unspecific Internet-use disorder and an Internet communication disorder, respectively. Considering the question of motives, expectancies, and reasons for a repeated usage of online games (King & Delfabbro, 2014) could be a key mechanism for preventive programs. The implementation of this perspective in each gamer could enhance individual self-control and the reflection of own needs, which result in a functional, responsible gaming behavior as well as in the establishment of alternative coping strategies for everyday life. The advantage is that these offers are not only oriented to individuals who already suffer from IGD symptoms, but also to individuals who experience problems without fulfilling all the IGD criteria. This is an important aspect of early intervention. Taken current empirical and theoretical research of IGD into consideration, instead of focusing on external factors and structural characteristics, reduces the dependency of politics and society on the will and engagement of the industry. The integration of fatigue systems or reducing the addictive potential of games contradict the objective to create attractive, enjoyable, and profitable games. To be clear at this point, it would be good if games were less addictive and strategies for reducing the addictive structure of games are important. However, those strategies, which are dependent upon the industry, are not enough. Providing another perspective based on psychological research, which centers on the individual, has the potential to contribute to creating new successful approaches, which include a realistic and socially responsible implementation.

Finally, the article by Király et al. (2018) focuses on gaming, which makes sense because gaming has been included in the DSM-5 and in the ICD-11. However, we argue that also other applications can be used addictively, e.g., pornography, shopping sites, and communication applications. Clear policy responses to these potential further types of specific Internet-use disorders, beyond IGD, are widely missing.

In summary, the review of Király et al. (2018) offers an excellent overview about current policy responses to IGD. However, additional theoretical and empirical arguments should be considered to identify and create prevention and intervention strategies and to optimize their efficacy. All regulations and policies as well as all treatments should be monitored and evaluated systematically with respect to their efficacy and potential side effects in order to provide adequate help for individuals with IGD or other types of Internet-use disorders and those who are at-risk for developing an addictive online behavior.

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