Abstract

Kimberly Young's early work on Internet addiction (IA) has been pioneering and her early writings on the topic inspired many others to carry out research in the area. Young's (2015) recent paper on the 'evolution of Internet addiction' featured very little European research, and did not consider the main international evidence that has contributed to our current knowledge about the conceptualization, epidemiology, etiology, and course of Internet-related disorders. This short commentary paper elaborates on important literature omitted by Young that the present authors believe may be of use to researchers. We also address statements made in Young's (2015) commentary that are incorrect (and therefore misleading) and not systematically substantiated by empirical evidence.

Anyone that has worked in the area of Internet addiction (IA) will be aware of and respect the pioneering work of Kimberly Young. There is no doubt that her early writings on the topic inspired many others to carry out research in the area. However, her paper on the 'evolution of Internet addiction' (Young, 2015) – while admittedly personal and brief – mentioned very little of the European research, and did not consider the main international evidence that contributed to our current knowledge about the conceptualization, epidemiology, etiology, and course of Internet-related disorders. Consequently, the present authors are writing this short commentary paper to elaborate on important literature omitted by Young that we believe may be of use to researchers including theoretical and empirical work carried out in Europe, Australia, and South East Asia in the early years of research into the topic (1995-2001).

Young's first published work on IA was a case study of a 43-year old woman published in 1996 (Young, 1996). This was followed in 1998 by an influential book (Young, 1998a) and paper (Young, 1998b) on IA. In Europe, the roots of research into IA began with the publication of Griffiths' (1995a) paper on 'technological addictions' that prompted publications on both IA (Griffiths, 1995b; 1996a) and specific online addictions such as Internet gambling addiction (Griffiths, 1996b). In addition to the work of Young and Griffiths, the first empirical studies started to appear, including prevalence surveys with self-selected samples, case studies, explorations of psychosocial and psychiatric correlates of IA, and psychometric validation of instruments assessing IA (e.g., Black, Belsare & Schlosser, 1999; Brenner, 1997; Chou, 2001; Kubey, Lavin & Barrows, 2001, Lavin, Marvin, McLarney et al., 1999; Leon & Rotunda, 2000; Morahan-Martin & Schumacher, 2000; Pratarelli, Browne & Johnson, 1999; Scherer, 1997; Shapira, Goldsmith, Keck et al., 2000; Treuer, Fabian & Furedi, 2001; Tsai & Lin, 2001; Xuanhui & Gonggu, 2001).

Arguably, one of the most important issues in the field at present was not addressed at all by Young's brief overview. This concerns whether IA can be considered a viable construct, which led experts in the field (i.e., Starcevic & Aboujaoude, 2015) to suggest that the concept of IA is not suitable if it refers to the use of the Internet as a medium to fuel other addictions, or that it should be replaced by addictions to specific online activities (provided that each such activity would have their behavioral addiction patterns ascertained) (Starcevic, 2013). Young (1999) attempted to make distinctions between

cybersexual addictions, cyber-relationship addictions, net compulsions, information overload, and computer addiction. In response to this paper, Griffiths (1999; 2000a) argued that many of the excessive users identified by Young were not 'Internet addicts', but just used the Internet excessively as a medium to fuel their other addictions, a view that is now shared by several leading scholars in the field (e.g., Billieux, 2012; Starcevic, 2013).

The dominant view, which indirectly resulted in the APA's choice to favor the term "Internet Gaming Disorder" and reject "Internet addiction", is that a gaming addict is not addicted to the Internet *per se* but simply uses it as a medium to engage in the chosen behavior. Along the same lines, Billieux (2012) argued that Internet-related disorders have to be conceptualized within a spectrum of related and yet independent disorders. Indeed, behavioral addictions such as IGD, online social networking addiction or even online sexual addiction represent dysfunctional behaviors that have been related to both common factors (e.g., heightened impulsivity and addictive personality) and specific factors (e.g., the various motives and dysfunctional cognitions that perpetuate problematic behaviors). According to Montag, Bev, Sha et al. (2014), it is necessary to conceptually distinguish what appears to be generalized and specific IA, a view that has already been highlighted within the gaming studies field, suggesting that IGD is not the same as IA (Király et al., 2014). Put very simply, as suggested by Griffiths (1999; 2000a), there is a meaningful and conceptual difference between addictions *on* the Internet and addictions *to* the Internet.

Notwithstanding this, early case study reports appeared to identify a small number of cases who seemed to be addicted to the Internet itself (e.g., Griffiths, 1996; 2000b; Leon & Rotunda, 2000; Young, 1996). These were typically individuals that used Internet chat rooms – an activity that they would not engage in anywhere except on the Internet. More recently, the same argument has been used for individuals that appear to be addicted to using social media and social networking sites (Griffiths, Kuss & Demetrovics, 2014; Kuss & Griffiths, 2011). These individuals are to some extent engaged in social online spaces and may represent themselves differently online than in real life in order to feel good about themselves.

In these cases, the Internet provides an augmented yet limited perspective of reality to

users and allows them feelings of belongingness that may be psychologically compensating for the lack of social rewards in their real lives. Such feelings (e.g., immersion in the case of online gaming) may actually lead to an altered state of consciousness that in itself may be highly psychologically and physiologically rewarding (Griffiths, 2000a). Such lines of research also inspired recent studies supporting that the discrepancy between actual versus virtual self is a predictor of excessive involvement in various types of online activities (Bessière, Seay, & Kiesler, 2007; Billieux et al., 2015; Przybylski, Weinstein, Murayama et al., 2012).

The present authors also note that the IA conceptual framework used in Young's commentary is limited to the very recent and neurobiological-centered model proposed by Brand, Young and Leier (2014). Although relevant and convincing regarding its purposes, this model is one attempt among others in explaining Internet-related disorders. Furthermore, Brand and colleagues' model lacks robust empirical validation (Pontes, Kuss & Griffiths, 2015). In the present authors' view, there is currently no international consensus regarding the conceptualization and diagnosis of Internet-related disorders (e.g., Griffiths, van Rooij, Kardefelt-Winther et al., 2015; King, Haagsma, Delfabbro et al., 2013; Pies, 2009), and this is a key criticism of this developing research area. For example, Young (2015) made no mention of the influential cognitive-behavioral approach developed by Davis (2001), which inspired an upsurge of psychometric cognitive-behavioral studies (e.g., Caplan, 2002).

Related to the debate about addictions *on* the Internet versus addictions *to* the Internet, Davis' model of pathological Internet use (PIU) was the first to differentiate between generalized pathological Internet use (GPIU) and specific pathological Internet use (SPIU). Davis considers SPIU as a type of IA where people pathologically engage in a specific function or application of the Internet (e.g., gambling, gaming, shopping, etc.), whereas GPIU is a more general, multi-dimensional pathological use of the Internet. Davis introduced concepts such as distal and proximal contributory causes of PIU. On the one hand, distal causes may include pre-existing psychopathology (e.g., social anxiety, depression, substance dependence, etc.) and behavioral reinforcement (i.e., provided by the Internet itself throughout the experience of new functions and situational cues that contribute to conditioned responses). On the other hand, proximal causes may involve maladaptive cognitions that are seen as a sufficient condition with the potential to lead to

both GPIU and SPIU and also cause symptoms associated with PIU (Montag et al., 2014). Similarly, Young (2015) also ignored recent models that view dysfunctional Internet use as a compensatory strategy rather than a genuine addictive behavior (Kardefelt-Winther, 2014; Schimmenti & Caretti, 2010). The research highlighted in this commentary provides only a few examples to indicate that the literature on Internet-related disorders greatly flourished at the international level within the last ten years.

It should also be noted that there were also statements made in Young's (2015) commentary that are incorrect (and therefore misleading) and not systematically substantiated by empirical evidence. For instance:

- Young claimed that *"by the late 2000s studies predominantly came from Asian cultures regarding this problem"*. This is certainly debatable (at least among papers published in the English language and depending on the definition of 'predominantly'). For instance, Kuss, Griffiths, Karila and Billieux (2014) carried out a systematic literature review of all major epidemiological studies examining IA between 2000 and 2013. To be included in the review, studies had to (i) contain quantitative empirical data, (ii) have been published after 2000, (iii) include an analysis relating to IA, (iv) include a minimum of 1000 participants, and (v) provide a full-text article published in English. A total of 68 studies were identified, with 50 being published between 2000 and 2010. Of these 50 studies, 21 were from South East Asian countries (mostly Taiwan and China). In another paper that examined all the epidemiological studies on IA using nationally representative samples between January 2014 and February 2015 (Pontes, Kuss & Griffiths, 2015), only four of the 12 studies identified were from South East Asian countries (South Korea, Taiwan and China).
- Young claimed that *"in 2013, Internet Addiction Gaming disorder was singled out as the most potent problem categorized in the revised Diagnostic and Statistical Manual of Mental Disorders"*. Firstly, the designation given to this disorder was "Internet Gaming Disorder" (not Internet Addiction Gaming disorder') and nowhere in the DSM-5 did it state that IGD was the *"most potent problem"*. In fact, if this was the case, the phenomenon would not have been included in Section 3 ("Emerging Measures and Models") of the DSM-5 but indeed within the main text as an officially recognized disorder (American Psychiatric Association, 2013).

- Young claimed that *"today, the question [concerning IA] has shifted from how much time online is too much to how young is too young for children to go online"*. First, such a statement requires further elaboration. Indeed, since the influential work of Charlton and Danforth (2007), the question of the boundary between *high involvement* or *passion* versus *problematic use* or *addiction* received a growing interest and generated debates about, for example, the pathologization of common behaviors (Griffiths, 2010; Billieux, Schimmenti, Khazaal, et al., 2015). Second, looking at the all the published studies on IA over the last few years, there are very few empirical studies that have focused on the issue of early IA onset.

- Furthermore, Young also claimed a number of times that the US should learn from what is going on in Korea regarding IA treatment and prevention. However, the present authors' view is that such assertion does not take into account the cultural discrepancies in attitudes towards Internet use in South East Asia and elsewhere. For instance, parents in South East Asia appear to pathologize any behavior that takes time away from family or educational pursuits. This may explain the highly inflated prevalence rates of IA in countries such as Taiwan and South Korea (Kuss et al., 2014.). In short – and from a cultural perspective – in some cultures, any non-educational Internet use (not just excessive use) may appear to cause problems for the user at several levels.

The present authors would like to reiterate the respect we have for Young in helping putting IA on the academic research map. We also accept that the paper written for the special issue on behavioral addictions was an invitation to write about IA from a personal perspective. Nevertheless, the present commentary paper simply addresses important literature omitted by Young in her original paper and attempts to rectify some of the mistakes and misperceptions made.

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