

A Developmental Social Work Perspective on Problematic Internet Use among University Students

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Abstract

Problematic internet use (PIU) is a growing phenomenon worldwide. Students in higher education especially are a vulnerable group for developing symptoms associated with PIU as a result of the idiosyncratic characteristics of student life. Owing to a lacuna in local social work research on the nature, extent and impact of internet use among students in South Africa, a cross-sectional survey was conducted with 498 (n = 498) second-year undergraduate students at a South African university. The results indicate that students access the internet on university campuses and at home daily through their cell phones and laptops for academic and social purposes. Although the average number of hours spent on the internet per day does not indicate PIU, the findings flag certain symptoms associated with PIU, for example, tolerance, escape from problems, and loss of control. Social workers should not be complacent, but rather introduce services to lower students' risk of PIU. Considering the country's adoption of social development as welfare model, developmental social work services on the preventive, early intervention and treatment levels as well as policy development are recommended.

Keywords: developmental social work; internet addiction; problematic internet use; South Africa; tertiary institutions; university students

Introduction

Access to and the use of the internet have become the norm for over three billion people across the world (Kapahi et al. 2013; Zafar 2016). Internet platforms are used for extrinsic reasons, for example, academic, work-related and economic activities, as well as for intrinsic reasons, such as recreational and social activities (Adiele and

Olatokun 2014). In developing countries, access to the internet is not the norm for many citizens, including university students (Brown and Czerniewicz 2010). Many South African students, however, have access to free internet through Wi-Fi and to computers in laboratories and libraries on university campuses.

Despite the numerous advantages of the internet, the excessive use thereof (typically more than 40 hours of internet use per week) could expose people to problematic internet use (PIU) (cf. Young 2009). PIU is defined as “...uncontrollable and compulsive Internet use, resulting in problems in multiple domains such as poor academic and professional performance, diminished sleep quality and hygiene, and relational maladjustment” (Mahapatra and Sharma 2018, 175). PIU, also referred to as internet addiction, presents in a number of subtypes. Among the subtypes are excessive gaming, cyber-sexual addiction, cyber-relational addiction, the excessive use of smartphones, excessive communication on electronic platforms (for example, emailing, texting, blogging, online chatting), information overload, and excessive downloading of music and videos (Kawa and Shafi 2015; Liu 2015; Richardson, Hussain, and Griffiths 2018; Shaw and Black 2008; Young 2009). Although PIU is not included in the DSM-5 as a mental disorder, it can be regarded as a hidden form of addiction (Christakis 2010; Kardefelt-Winther 2016). As an example, the international prevalence of excessive gaming as a subtype of PIU has become so severe that gaming disorder was recently assigned with an International Classification of Disease (ICD) code for diagnosis by the World Health Organization (WHO) (WHO 2018).

Epidemiological surveys suggest that particularly children, males, middle-aged females, sexual minorities, single persons, students and youths are vulnerable to PIU (Kuss, Griffiths, and Binder 2013; Lin, Ko, and Wu 2011; Wang et al. 2013). As the authors of this paper are employed by a university in South Africa, the present study focused on students who are in the life stage of young adulthood. Students are considered a risk group for PIU owing to unstructured time available, their newly experienced freedom, the encouragement of online learning, free Wi-Fi on campuses, and social isolation within the greater student population (Kawa and Shafi 2015; Mahapatra and Sharma 2018; Salehi et al. 2014).

Social workers, including those employed in Student Support Centres on university campuses, could encounter service users presenting with symptoms associated with PIU, such as alexithymia, anxiety, depression, headaches, poor interpersonal relationships, social withdrawal, and poor academic performance (Kapahi et al. 2013; Mahapatra and Sharma 2018; Wang et al. 2013; Young 2009; Zafar 2016). It is thus possible that social workers could be faced with an increasing number of service users requiring social work services related to symptoms associated with PIU. Therefore, awareness of this phenomenon should be promoted in the social work profession.

An extensive search on academic databases (for example, EBSCOhost, Sabinet, Social Work Abstracts, and Google Scholar) did not reveal any evidence of research

on internet use and symptoms associated with PIU among students at a tertiary institution in South Africa. Hence, this study aimed to answer two research questions: (1) “What is the nature, extent and impact of internet use among students at a South African university?”; and (2) “How could social work services be employed on the service levels of prevention, early intervention and treatment of symptoms associated with PIU among students in the South African context?” After a discussion of developmental social work (DSW) as the theoretical framework underpinning the study, the research methods will be explained, followed by the research results, discussion, and conclusions and recommendations for dealing with the symptoms associated with PIU among students in South Africa.

Developmental Social Work

After democratisation in 1994, South Africa adopted social development as a welfare model for the country (Patel 2015). Within a social development paradigm, social workers ought to contribute towards the achievement of integrated social, economic and human capital development (Lombard 2017; Patel 2015). In this paper it is argued that DSW offers a “vehicle” through which social workers could promote social development. In the context of the present study, DSW is considered “... people centred, participatory, transformative and rights-based; it focuses on prevention and awareness through education and favours populist forms of intervention” (Gray et al. 2018, 975).

Several international, regional and national declarations as well as policy and legislation provide a mandate for social workers in South Africa to base their practice on the principles of DSW (cf. the World Summit for Social Development, Copenhagen (International Council for Social Welfare 1995), Universal Declaration of Human Rights (UN 1948), Sustainable Development Goals (UN 2015), Agenda 2063: The Africa we want (African Union Commission 2015), the Constitution of the Republic of South Africa (Republic of South Africa 1996), the National Development Plan 2030 (The Presidency 2012), and the White Paper for Social Welfare (Republic of South Africa 1997)). These principles include accountability, human rights, improved quality of life, investment in human capital, non-discrimination, people-centredness, promotion of human dignity, transparency, and partnerships (Patel 2015; Republic of South Africa 1997). The mentioned principles resonate with the development of second-generation rights of people. Second-generation rights include education, health, housing, and improved standards of living (Androff 2016). Human rights form an integral part of the aim of social work (Reichert 2011) and involve, among others, promoting social environments for the optimal development of people (Marks 2005). The promotion of human rights includes the creation of an environment that is conducive to people reaching their full potential (Marks 2005).

The internet, through the utilisation of online devices, offers people opportunities to achieve many of the principles underscored by DSW, as mentioned in the previous paragraph. Access to information and transparency, for example, are both human rights for which the internet opens many possibilities; furthermore, people could invest in their human capital development (cf. Republic of South Africa 1996) through educational opportunities provided through the internet (for example, massive open online courses (MOOCs) and professional online development (POD)). However, people who use the internet excessively could be at risk for jeopardising the second-generation rights they are entitled to.

Universities, in providing tertiary education, play an indispensable role in the promotion of second-generation rights, such as the right to education, investment in human capital, and promotion of human dignity. Teaching and learning practices at universities often resort to online modalities of teaching and assessment to capitalise on the unique possibilities offered by the internet. However, universities should also be sensitive not to exclude students from disadvantaged backgrounds to educational opportunities offered via online modalities. For many students (free) access to the internet is limited to the university campus (Czerniewicz and Rother 2018). Despite the benefits of the internet, the extensive use of online devices could expose students to the risk of PIU, and by implication, affect the rights mentioned above.

DSW creates an opportunity for social workers to promote second-generation rights and improve the quality of life of service users (Midgley 2010). It is opined that DSW offers social workers a theoretical stance from which PIU could be approached and dealt with. DSW requires that social workers bridge the micro-macro divide by considering the possibilities of macro practice to deal with social welfare problems before resorting to meso and micro practice (Patel and Hochfeld 2012). Thus DSW encapsulates social work service delivery on multiple levels of intervention and with a diversity of service users, including individuals, groups and communities (Lombard 2017; Patel 2015). Service delivery prioritises prevention and early intervention services, followed by treatment, and eventually aftercare services (DSD 2013). Social workers implementing DSW utilise practice models such as anti-discriminatory social work, critical social work, empowerment, human rights and a strengths perspective, social justice, and structural social work (Androff 2016; Ife 2012; Lombard 2017; Midgley 2010). As a point in case, Khazaei, Khazaei, and Ghanbari-H (2018) developed and evaluated a strengths-based group work programme for Iranian students presenting with symptoms of PIU. Therefore, the authors regarded DSW as an appropriate theoretical framework from which to explore and describe students' internet use and to propose potential DSW services to deal with symptoms associated with PIU among students at South African universities.

Research Methods

A quantitative study with an exploratory and descriptive purpose (Babbie 2017) was undertaken with the aim to explore and describe the nature, extent and impact of internet use among students.

Convenience sampling was used to recruit 498 (n = 498) second-year students who had to be young adults between 18 and 25 years, enrolled for a Bachelors of Arts degree and registered for a module in a Basic Social Science (for example, Anthropology, Criminology, and Sociology) at a South African university in a metropolitan area. The response rate was 54.5 per cent. Students who did not provide their written informed consent to participate in the study were allowed to deposit blank questionnaires.

A cross-sectional survey, operationalised through a group-administered questionnaire, allowed the authors to provide a uniform introduction to the study (Adler and Clark 2015). The questionnaire did not diagnose or determine the prevalence of PIU as such. In addition to the profile of the respondents, the questionnaire collected data on the nature of their internet use with reference to internet platforms used, the reasons for internet use, typical devices used for connecting to the internet and the location where the respondents accessed the internet. Furthermore, the questionnaire explored the extent of internet use with a focus on time online per day and preferred time slots for online activities. The impact of internet use on the respondents was explored using 10 constructs (see Table 1), with items adopted from the Internet-Related Addictive Behaviour Inventory (IRABI) (Brenner 1997) and the Problematic Internet Use Questionnaire (PIUQ) (Demetrovics, Szeredi, and Rószá 2008) which are both in the public domain.

Table 1: Conceptualisation of constructs

Constructs	Conceptualisation
Escape from problems	Using the internet to avoid real life confrontation (face-to-face communication) and to deal with problems such as depression and loneliness through accessing the internet (Thatcher and Goolam 2005; Young 2009).
Introversion	Using the internet to deal with low self-esteem and to withdraw from social interaction (Kapahi et al. 2013).
Loss of control	Using the internet for prolonged periods and finding it difficult to decrease the amount of internet use (Demetrovics, Szeredi, and Rószá 2008).
Negative effects	Excessive internet use results in adverse effects, such as sleeping disorders, physical changes such as fatigue, weight loss, headaches or backaches, lying, and poor academic or work performance (Kapahi et al. 2013; Young 2009).

Constructs	Conceptualisation
Neglect	Everyday activities and essential needs, such as household chores, work, studies, eating, and interpersonal relationships, are neglected due to increased internet use (Demetrovics, Szeredi, and Rószka 2008).
Obsession	Anxiety, worry and depression caused by (perceived) restrictions to access the internet (Yeh et al. 2012).
Reduced activities	Prioritising the internet at the expense of other essential functions, such as relationships, family duties and academic work (Young 2004).
Related activities	Engagement in activities related to the internet when not online such as reading internet magazines and books, as well as reorganising computer files (Young 2004).
Tolerance	The need to increase online activities continuously to achieve the desired effect (e.g. euphoria) (Müller, Beutel, and Wölfling 2014).
Withdrawal	Unpleasant feelings, such as moodiness, restlessness, irritability, and/or depression, when trying to reduce internet use (Young 2004).

Data quality was ensured through the confirmation of face and content validity by peer reviewers before the data were collected, while reliability was determined with the calculation of Cronbach’s alpha coefficient to establish the internal consistency of items (Pietersen and Maree 2016). The alphas ranged between 0.26 and 0.73. All statistical calculations were performed with SPSS, Version 24. The mean of the score for each of the 10 constructs (distributed over 38 items) exploring the impact of internet use was calculated. Similar to several international surveys among students, no strong indication of symptoms associated with PIU was detected (Byun et al. 2009). In this regard, Steyn (2016) noted that respondents often tend to underreport on matters of addiction even if anonymity is assured and self-report measures applied, as could also be the case in this study. Therefore, the authors determined whether the respondents reported a score of 3 or 4 on a 4-point Likert scale on any item per construct to “flag” symptoms associated with PIU. The Likert scale ranged from “1” (not true at all) to “4” (extremely true).

Ethical considerations, such as avoidance of harm, voluntary participation, written informed consent and confidentiality, were observed. None of the authors lectured any module from which the respondents were recruited (Babbie 2017). The study received ethical clearance from the Research Ethics Committee of the university (Ref. no: GW20150312HS).

Results

The results focus on the profile of the respondents, followed by the reported nature, extent and impact of internet use.

Profile of the Respondents

The mean age of the respondents was 20.26 years ($SD = 1.17$) at the time of the survey. In line with the gender distribution of the university student population in South Africa (Department of Higher Education and Training 2018), more female (82.66%) than male (17.34%) respondents participated in the study. In terms of racial groupings, the respondents identified themselves as White (47.88%), Black African (45.45%), Indian/Asian (3.43%) and Coloured (2.42%). The sample differs from the racial breakdown of South African students at public universities where 71.9 per cent are currently Black African, 15.6 per cent White, 6.3 per cent Coloured and 5.2 per cent Indian/Asian (Department of Higher Education and Training 2018).

As expected among young adults (Sigelman and Rider 2009), slightly more than half of the respondents (52.41%) indicated that they were in a romantic relationship and 47.59 per cent were single.

Internet data is quite expensive in South Africa, therefore the authors explored the subjective view the respondents had about their financial situation. Most respondents (48.89%) considered their financial situation adequate, while 33 per cent deemed it limited and 17.51 per cent regarded themselves as financially well-off. The majority of the respondents grew up in an urban area (56.57%), followed by semi-urban (28.48%) and rural areas (12.53%). The greatest percentage of the respondents lived with their parent(s) or caregiver(s) (29.03%), on their own (19.35%), with friends (17.54%) or in university residences (17.34%).

The respondents who declared that they experience emotional challenges, indicated stress ($n = 197$; 37.31%), anxiety ($n = 133$; 25.19%), shyness ($n = 93$; 17.61%) and poor self-esteem ($n = 60$; 11.36%). Additionally, those who responded to a question exploring mental disorders for which they receive medication indicated depression ($n = 32$; 54.24%), ADHD/ADD ($n = 9$; 15.25%), and anxiety disorder ($n = 8$; 13.56%). Some respondents also reported on physical health problems that they experience, including asthma ($n = 17$; 23.61%), allergies ($n = 11$; 15.28%), headache/migraine ($n = 10$; 13.89%) and hypertension ($n = 9$; 12.5%).

The extent to which hobbies, other than the internet, occupied the time of the respondents was explored. Most of the respondents indicated that they engaged in hobbies that involved physical activities, such as different forms of sport (51.61%); a further 36.75 per cent responded that they have interests such as photography, and another 24.5 per cent indicated that they practice arts and culture, for example, painting and reading.

Nature of Internet Use

The nature of internet use was explored with reference to the internet platforms used, reasons for internet use, devices used for connecting to the internet, as well as the locations for accessing the internet. The respondents were requested to indicate all the internet platforms they use (see Table 2).

Table 2: Internet platforms

Internet platforms	n	%
Emails	448	89.96
Online chat/messaging	409	82.13
General searching	382	76.71
Downloading music/movies/software	355	71.29
WWW	336	67.47
Reading news	208	41.77
Skype	112	22.49
File transferring	103	20.72
Peer-to-peer file sharing	78	15.66
Online shopping	52	10.44
Online interactive games	48	9.64
Newsgroups	57	11.45
Online gambling	7	1.41
Cybersex	7	1.41

Most of the respondents indicated that they use the internet for communication purposes, for example, emails (89.96%) and online chat/messaging (82.13%). General searching (76.71%), downloading (71.29%), and reading news (41.77%) were also favourite activities. Only gambling (1.41%) and cybersex (1.41%) received very low responses.

The nature of internet use was further explored in terms of the reasons for internet use (see Table 3), devices for connecting to the internet (see Table 4), and location for accessing the internet (see Table 5).

Table 3: Reasons for internet use

Reasons for internet use	n	%
Assignments	470	94.38
Academic knowledge	428	86.12
Information	412	82.73
Learning/educational purposes	342	68.67
Boredom	334	67.07

Reasons for internet use	n	%
Friendship	333	66.87
General knowledge	315	63.25
Excitement	123	24.7
New experiences	113	22.69
Well-being	89	17.91
Loneliness	74	14.86
Satisfaction	54	10.84
Independence	47	9.44
Frustration	34	6.83
Facelessness/anonymity	30	6.02
Isolation	30	6.02
Depression	28	5.62
Control	23	4.62
Eroticism	22	4.42
Intimacy	19	3.82

The respondents used the internet for diverse reasons (see Table 3). Almost all of the respondents indicated academic motivations, namely assignments (94.38%), knowledge (86.12%) and information (82.73%) as the predominant reasons for internet use. Furthermore, a relatively large number of respondents indicated socially related reasons for internet use, as evidenced in the responses concerning boredom (67.07%) and friendship (66.87%). Control, eroticism and intimacy were mostly disregarded as reasons for internet use.

Table 4: Devices for connecting to the internet

Devices	n	%
Mobile/cell phone	490	98.39
Laptop	401	80.52
Desktop computer	352	70.68
Tablet	217	43.57

As indicated in Table 4, the number of respondents who reported to access the internet via mobile/cell phones (98.39%) and laptops (80.52%) is quite high for a developing country where data costs are relatively high.

Table 5: Locations for accessing the internet

Internet locations	n	%
University campus	461	92.57
Home	409	82.13

Internet locations	n	%
Library	323	64.86
My room	318	63.86
Restaurants/coffee shops	192	38.55
Class/lecture hall	178	35.74
Internet cafés	72	14.46

Table 5 shows that the university campus (92.57%), which has free Wi-Fi, plays a major role in enabling the respondents to access the internet, whether for academic or other purposes. Nonetheless, many respondents indicated that they access the internet at home (82.13%) or in their rooms, both on- and off-campus (63.86%).

Extent of Internet Use

The respondents' extent of internet use was explored in terms of access to the internet and preferred time slots (see Table 6).

Table 6: Access to the internet and preferred time slots

Access and time slots	n	%
Access to the internet		
Daily	452	90.95
Every second or third day	38	7.65
Weekends	7	1.41
Preferred time slots		
Morning (06:00–12:00)	230	46.37
Early afternoon (12:00–16:00)	247	49.8
Late afternoon (16:00–18:00)	262	52.82
Evenings (18:00–22:00)	378	76.21
Late at night (After 22:00)	119	24.49

As reflected in Table 6, the majority of the respondents (90.95%) accessed the internet daily, and they preferred online activities during the evenings (76.21%) and late afternoon (52.82%); both time slots being after usual lecture hours. The average time spent online per session was 3.12 hours (SD = 3.69), irrespective of the number of sessions per day.

Impact of Internet Use

Table 7 offers a general overview of the 10 constructs that were explored to describe the impact of internet use on the respondents.

Table 7: Impact of internet use

Impact	Mean (4-point Likert scale)	SD
Tolerance	1.98	0.59
Escape from problems	1.83	0.56
Loss of control	1.75	0.56
Introversion	1.69	0.84
Withdrawal	1.68	0.61
Obsessions	1.51	0.57
Related activities	1.50	0.82
Reduced activities	1.44	0.64
Negative effects	1.41	0.42
Neglect	1.40	0.57

As indicated in Table 7, the mean (based on a 4-point Likert scale) reveals that “tolerance” ($M = 1.98$; $SD = 0.59$) showed high ratings, indicating a need to increase internet use to reach the desired effect. “Escape from problems” ($M = 1.83$; $SD = 0.56$) also featured prominently. The latter construct implies that the internet is used to escape from daily problems, for example, emotional problems. A considerable number of respondents indicated a “loss of control” over internet use ($M = 1.75$; $SD = 0.56$); spending prolonged periods using the internet and finding it difficult to decrease internet use. Respondents also indicated that they use the internet to deal with low self-esteem or to withdraw from social interaction as indicated with “introversion” ($M = 1.69$; $SD = 0.84$). “Negative effects” ($M = 1.41$; $SD = 0.42$) and “neglect” ($M = 1.40$; $SD = 0.57$) did not feature strongly as a result of internet use.

Discussion

It was found that the respondents access the internet daily and mainly between 18:00 and 22:00 in the evenings or during the late afternoon (16:00–18:00). Considering that the vast majority of the respondents access the internet on the university campus, this finding could relate to the fact that university libraries and computer laboratories are often open for extended hours in the evenings and also over weekends. The university is thus enabling students to access the internet for both intrinsic and extrinsic motivations. As indicated in Table 4, the majority of the respondents access the internet via mobile/cell phones, followed by the use of a laptop. This finding is similar to the results in another South African study conducted by Brown and Czerniewicz (2010) who also found that students mostly access the internet via cell phones. The high percentage of cell phone use as reported in this study could increase respondents’ susceptibility to symptoms of problematic smartphone use (PSU – a subtype of PIU), such as academic problems, increased phone use and withdrawal symptoms

(Richardson, Hussain, and Griffiths 2018). A noteworthy finding was that the majority of students use cell phones to connect to the internet despite the high cost of data bundles in South Africa. To illustrate this point, 1GB of data in South Africa costs US\$7.84 in comparison to lower costs in neighbouring countries such as Namibia (US\$1.19) and Mozambique (US\$2.02) (Payi 2019). Brown and Czerniewicz (2010) found that as much as half of the expenditure of South African students is related to the use of their cell phones.

If the responses for internet platforms used and reasons for internet use are considered, it appears that the respondents tend to use the internet predominantly for extrinsic reasons, which in this study refer to assignments, academic knowledge and learning or educational purposes. The respondents, as young adults, also used the internet quite extensively for intrinsic motivations, which in this study refer to as a result of boredom, friendship and general knowledge. Adiele and Olatokun (2014) found in their study among university students that intrinsic motivations for internet use are not predictors of symptoms of PIU. However, if these results are read in conjunction with the results in Table 2, it appears that the respondents predominantly used emails, online chats or messaging and downloading music/movies/software as their preferred internet platforms. Both these could signify the use of the internet for intrinsic reasons. This anomaly should be interrogated in future studies.

The purpose of this study was not to diagnose PIU among respondents. In this study it was found that the respondents used the internet for approximately 22 hours per week. Internationally there is agreement that an average of 40 hours of internet use per week signal PIU (Adiele and Olatokun 2014; Young 2009). This finding should not be ignored, given that the respondents had a substantial mean score for the construct “tolerance” towards internet use. Here “tolerance” refers to the need to increase online activities continuously to achieve the desired effect (for example, euphoria) (Müller, Beutel, and Wölfling 2014).

The authors explored 10 constructs typically associated with PIU. Similar to numerous international surveys among students as reflected in a meta-synthesis (Byun et al. 2009), none of the constructs was flagged as risk areas. However, in addition to “tolerance” as discussed above, it appeared that some of the respondents resorted to the internet because they lost the ability to control their internet use or to cope with social and emotional problems. These aspects could reflect the day-to-day life of university students who generally have large amounts of unstructured time and may face social and emotional challenges (Kawa and Shafi 2015). Although to a limited extent, the internet seems to become a coping mechanism for some young adults to deal with daily biopsychosocial challenges (Kapahi et al. 2013; Young 2009).

The authors acknowledge that the study was conducted among students in one year group, enrolled for a degree at a South African university, and could therefore not be generalised to the country as a whole. Nonetheless, the authors are of the opinion that

this exploratory study offers some important indications towards university students' internet use in South Africa and signals potential DSW services to be rendered, specifically as it relates to prevention, early intervention, treatment services, and policy development.

Conclusions and Recommendations

The results indicate a low mean of scores related to the constructs exploring the impact of internet use among the study sample. One reason for this finding could be the tendency of denial and the underreporting of PIU (Chou, Condrón, and Belland 2005) although other reasons are also possible, for example, the limitations inherent to the use of a cross-sectional survey design which makes the determination of trends over time impossible (cf. Orben and Przybylski 2019). However, as students are a risk group for PIU, social workers should not be complacent but rather introduce social work services timeously to lower students' risk of PIU. Symptoms associated with PIU are often underreported; therefore, social workers should firstly familiarise themselves with these symptoms to inform appropriate services.

Social workers' involvement in dealing with PIU is firmly embedded in Goals 3 and 4 of the Sustainable Development Goals to which South Africa is a signatory, namely to "ensure healthy lives and promote well-being for all at all ages" and to "ensure inclusive and equitable quality education ... for all" (UN 2015, 14). Social workers should render services that are embedded in the principles of DSW, such as people-centredness, and that they implement practice models associated with DSW services, for example, the strengths perspective. Khazaei, Khazaei, and Ghanbari-H (2018) found that focusing on interventions that emphasise capabilities and strengths instead of problems and weaknesses, could improve the quality of life of students presenting with symptoms associated with PIU in the sense that they develop improved interpersonal relationships as well as, among others, better conflict management skills and the appropriate use of social support.

The levels of service delivery mandated in social welfare policy (cf. DSD 2013) include prevention, early intervention and treatment services to deal with symptoms of PIU among university students in South Africa. Total abstinence as often upheld for the treatment of substance use disorders is not deemed viable in the case of PIU as the internet has numerous advantages for users and has undeniably become part of people's daily lives (Chakraborty, Basu, and Kuman 2010). Therefore, harm reduction strategies should be embedded within DSW services to mitigate the negative effects of PIU (Van Wormer and Davis 2018). Harm reduction strategies could include teaching skills for controlled use of the internet, the use of timers, a log-off mechanism for prolonged hours of internet activity and unsubscribing from email list memberships (Chou, Condrón, and Belland 2005; Van Wormer and Davis 2018; Watson 2005).

As students spend most of their time in a tertiary education environment, prevention services should firstly focus on environmental change. Strategies could include capping access to non-academic internet platforms, for example, the use of Facebook, or installing timers on university computers to alert students to extended periods of computer use. These strategies, regarded as harm reduction by Van Wormer and Davis (2018), could be combined with social and life skills programmes to equip students with skills to deal with life challenges and not resort to the internet to “escape from problems”. Awareness campaigns and seminars could be targeted at university management, lecturing staff and students to inform them about the symptoms of PIU and the appropriate social work services that are offered (Chou, Condrón, and Belland 2005; Strang et al. 2012; Wang et al. 2013; Young 2004). In addition, students could be enabled to decrease their online behaviour by connecting with nature. Connectedness with nature should ideally form part of young adults’ lifestyle as it has the potential to promote their physical health and to balance and restore their emotional well-being (Richardson, Hussain, and Griffiths 2018). In this respect, social workers could motivate students to utilise green spaces and engage in physical activities in natural settings.

Early intervention services should firstly target vulnerable groups, such as students with comorbid diagnoses to prevent those with excessive internet use from developing PIU. Student support services and health clinics could assist in the identification of students presenting with comorbid symptoms of PIU such as anxiety, depression, and social withdrawal (Kapahi et al. 2013; Mahapatra and Sharma 2018; Wang et al. 2013; Young 2009; Zafar 2016) and refer these students to social workers. In this regard, meso practice intervention could be offered such as support groups and peer self-help groups to mitigate the impact of internet use on students and to introduce them to a range of interests with the view to replace risky online activities with these interests (Chakraborty, Basu, and Kuman 2010; Christakis 2010; Lin, Ko, and Wu 2011; Strang et al. 2012; Zafar 2016). Social workers could furthermore remind students of the benefits of hobbies and healthy recreational activities.

Individual counselling and treatment groups could form the basis of treatment services. Counselling services need to be provided for students to deal with socio-emotional problems, especially those associated as risk factors for PIU. DSW services would typically be informed by a strengths perspective and harm reduction strategies to manage symptoms associated with PIU. Social workers could, for example, facilitate a process where students identify their strengths and talents and develop strategies to utilise these when confronted with, among others, boredom, emotional distress, problematic interpersonal relationships, and social isolation instead of resorting to the internet as a coping mechanism (cf. Kisthardt 2013).

Apart from direct service delivery, social workers implementing DSW services should also be involved with policy development, policy evaluation and practice-based research (Patel and Hochfeld 2012). Social workers should liaise with university

management to develop a policy for the implementation of harm reduction strategies and services related to symptoms associated with PIU. These policies should, however, be sensitive to the socio-economic circumstances of university students and to create an environment which promotes their realisation of second-generation rights (cf. Czerniewicz and Rother 2018). Within the context of DSW with students as a risk group for developing PIU, social workers should familiarise themselves with their mandate to render services. In this regard, social workers can initiate the development of continuous professional development opportunities, such as short courses, to enable them to render appropriate services to students presenting with symptoms of PIU.

DSW service delivery requires that university management make sufficient provision for student support services to enable social workers to render prevention, early intervention and treatment services on the macro, meso and micro levels. DSW services could promote students' rights to education, socio-economic development, improved biopsychosocial well-being and quality of life, and ultimately their standard of living. Furthermore, social workers should undertake practice-based research to determine the effectiveness of their prevention, early intervention and treatment services in pursuit of establishing evidence-informed practices which are locally relevant for South African students.

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