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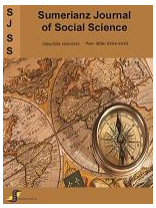

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Exploring the Awareness, Motivations, and Coping Strategies of Problematic Internet Users

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Abstract
This paper presents a systematic review that covers internet addiction and wellbeing studies on adults; followed by a semi-structured interview of a group of 6 problematic internet adult users, analysed through thematic analysis. The interview questions explore motives, awareness level and coping strategies of problematic internet users. The systematic review results are categorised based on DRIVE model and indicate gaps in the literature on internet addiction studies and suggests a holistic direction of studying wellbeing. The interviews resulted in 6 themes that reflected the user's awareness of the consequences of problematic internet use, coping strategies when there is a high information overload, controlling internet attachment, causes of excessive internet use, preferred using time and psychological effect after spending long hours online.
Keywords: Internet addiction; Problematic internet use; Wellbeing; Qualitative study.

1. Introduction
In the present time, where there is often information overload, it is necessary and useful to have a clear image of what is seen as internet addiction (IA) or problematic internet use (PIU). Since the 1990s, the internet has become the most used and relayed information source in our everyday lives. Excessive internet use has resulted in neglecting social activities, work responsibilities and health consequences. Psychologists and researchers identified those problematic behaviours as internet addiction (Young, 1998), PIU (Davis, 2001), and compulsive internet use (Meerkerk *et al.*, 2009). Although multiple terms and measures have evolved to assess internet addiction, it is generally described in terms of symptoms related to addiction such as obsessive and compulsive use, withdrawal signs, and impairment of life activities. Young (1998), for example, developed the Internet Addiction Test (IAT) measure using gambling addiction criteria from DSM 5 to measure internet addiction.

Recent studies have found that internet addiction and PIU are associated with conditions such as emotional instability, loneliness, social withdrawal, depression, low self-esteem, anxiety, and other addictive behaviours. The consequences of internet addiction can be severe; excessive internet use has the potential to cause career failure, marriage breakdown, as well as a financial crisis, with negative psychosocial effects. However, it is uncertain whether problematic internet use leads to social and psychological impairments or whether social and psychological issues cause the PIU. Understanding this causality is important to solve the root cause of the behaviour. Although internet addiction is largely recognised by psychologists and researchers as a problematic behaviour pattern, it is still not documented in the DSM-5. Many psychologists view PIU as a set of behaviours that may reflect an underlying psychiatric disorder such as depression or social withdrawal. More research is being conducted in the area aimed at determining whether internet addiction should be defined as a separate disorder with a distinctive treatment programme.

This article provides a review of internet addiction and wellbeing, followed by results from interviews aimed at exploring the awareness, motivations, and coping strategies of problematic internet users.

1.1. Internet Addiction Systematic Review Method
Pubmed and Psycinfo databases were searched for peer-reviewed articles published in English that addressed the association between internet addiction and wellbeing in adults. Selected studies were published in a time range that spanned the years 2000-2017. Studies were selected based on their relation to the association of wellbeing, mental health and internet addiction. Studies on adolescents were excluded, as were those on online gaming addiction disorder studies which has been classified as a separate disorder.

Qualitative, quantitative and case studies were considered. The following search terms were used: "compulsive internet use," "internet addiction," "problematic internet use*," "wellbeing," "mental health," and "wellbeing". After duplicates were excluded there were 146 results for internet addiction and wellbeing. The first author read all abstracts and full text of relevant articles. In the conducted review, a total of 35 empirical studies were identified.

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The majority of studies were cross-sectional (n= 29), four were longitudinal studies, one was qualitative, and one was an experimental study. Studies were classified into four main themes and sub-themes. The main themes were the association between internet addiction and positive and negative outcomes, internet addiction and predictors of wellbeing, internet addiction and individual effects, and internet addiction and appraisals. In the reviewed studies, the sample sizes varied from 101 to 23,533 adults. The search terms used in the different search engines are described in the next section.

1.1.1. PubMed

- Search ((((("internet addiction"[Title/Abstract]) OR "compulsive internet us*"[Title/Abstract]) OR "problematic internet us*"[Title/Abstract]) AND "mental health"[Title/Abstract]) Filters: English language, Publication date from 2000/01/01 to 2017/12/31 results 61
- ((((("internet addiction"[Title/Abstract]) OR "compulsive internet us*"[Title/Abstract]) OR "problematic internet us*"[Title/Abstract]) AND "wellbeing"[Title/Abstract]) Filters: English language, Publication date from 2000/01/01 to 2017/12/31 results 16

1.1.2. Psychinfo

- Compulsive internet us* or problematic internet us* or internet addiction AND Wellbeing or wellbeing or mental health (peer reviewed) publication date 2000-2017 results 94
- Compulsive internet us* or problematic internet us* or internet addiction AND Academic performance (peer reviewed) publication date 2000-2017 results 30

1.2. Results

The conducted literature searches for this review revealed 33 articles that assessed the association between problematic internet and wellbeing. Two studies were added by identifying them from the reference lists of other studies.

Studies were divided into four themes and subthemes, based on the Demands- Resources-Individual Effects (DRIVE) Model structure (Mark and Smith, 2008; Williams *et al.*, 2017): internet addiction association with positive and negative outcomes, internet addiction and risk factors, internet addiction and individual effects, and internet addiction and appraisal. Some studies were categorised in more than one theme.

1.2.1. The Association between Internet Addiction and Positive and Negative Outcomes

In this theme, all studies that investigated the association of the negative and positive outcomes of wellbeing were discussed, starting with studies that measured wellbeing as a whole, and then studies that investigated internet addiction and depression.

1.2.1.1. Internet Addiction and Wellbeing

In a cross–sectional online survey of 330 young adults in Malaysia conducted by Kutty and Sreeamareddy's (2014), the compulsive internet use scale (CIUS) and the 12-item general health questionnaire (GHQ-12, high scores representing more mental health problems) were used. The results suggest that compulsive internet use is correlated with the GHQ score and negatively associated with age and marital status.

In a study aimed to investigate the association between PIU of communicative services and wellbeing of 495 Italian undergraduate students, Casale *et al*. (2015) used an Italian adaptation of the Psychological Wellbeing Scale and the Generalized Problematic Internet Use Scale 2 (GPIUS2), to assess the association between wellbeing and PIU. The findings present significant evidence that PIU of communicative services is associated with low psychological wellbeing.

Cardak (2013), examined the relationship between internet addiction and wellbeing in a sample of 479 Turkish university students, who completed online versions of the Turkish cognition scale (OCS) and Psychological Wellbeing scale (SPWB). The results indicated that internet addiction had a negative effect on wellbeing, with high levels of pathological internet use being associated with a lower level of wellbeing. Similar results were reported by Alavi *et al*. (2011) with a sample of 259 Iranian university students. Participants answered the Young diagnostic questionnaire and the Symptom Checklist-90-Revision (SCL-90-R). They found a high association between psychiatric symptoms such as sensitivity, depression, anxiety, aggression, phobias and internet addiction after controlling for age, marital status, gender, type of universities, and education level. Akin (2012), examined the relationships between internet addiction, subjective vitality, and subjective happiness in a sample of 328 Turkish university students. Participants completed the Subjective Vitality Scale, Online Cognition Scale and the Subjective Happiness Scale. The results revealed that internet addiction negatively predicted subjective vitality and subjective happiness.

Satici and Uysal (2015), explored the possible relation between problematic Facebook use and wellbeing in a sample of 311 university students, where participants completed a battery of questionnaires. These were the Bergen Facebook addiction scale, satisfaction with life scale, the subjective happiness scale and the subjective vitality scale. Life satisfaction, subjective happiness, flourishing and subjective vitality, were negatively correlated with problematic Facebook use.

Chen (2012), used a longitudinal study to distinguish the effect of online entertainment, social use, problematic internet use (PIU), and gender on psychological wellbeing. The sample consisted of 757 Taiwanese college

freshmen. Participants answered questions about demographics and four questionnaires: Self-Esteem Scale, Loneliness Scale, Beck's Depression Inventory II, and short PIU form. The questionnaires were given twice during the second and third year of college. Results revealed that increased PIU was associated with lower psychological wellbeing. Increased use of social networks was associated with positive wellbeing, yet not associated with fewer psychological wellbeing problems. A four-year longitudinal study was carried out by Muusses *et al.* (2014) using a sample of 398 married couples. The aim of the study was to explore the direction of the association of compulsive internet use with positive and negative wellbeing. The results suggested that PIU lowers wellbeing, through increases in depression, stress and loneliness over time, which result in a decrease in happiness. However, there was no effect of PIU on changes of self-esteem over time.

Senol-Durak and Durak (2011) explored life satisfaction and self-esteem roles as effective components of subjective wellbeing and problematic internet use cognitions. The theoretical frameworks of Davis (2001), Caplan (2002) and Lent *et al.* (2009) were used as a model for this study which was tested on a sample of 480 Turkish university students, using structural equation modeling (SEM). The results revealed that self-esteem was a mediator and had a positive/negative effect on life satisfaction through indirectly influencing problematic internet use.

Senol-Durak and Durak (2011) explored the predictors of Facebook addiction using behavioral, psychological, health and demographic information from 447 Turkish college students. They used the Facebook Addiction Scale (FAS), which was constructed and validated through factor analysis. Participants also completed the General Health Questionnaire (GHQ-28). The results revealed that insomnia, anxiety and severe depression were associated with Facebook addiction. Gender and other demographics were not significant predictors.

Most wellbeing and internet addiction studies have used university student samples and produced results which show that problematic internet use influences negative psychological wellbeing (Alavi *et al.*, 2011; Cardak, 2013; Casale *et al.*, 2015). Akin (2012) confirmed that internet addiction negatively predicted subjective vitality and happiness. Chen (2012) and Muusses *et al.* (2014) longitudinal studies revealed that increased PIU lowers wellbeing, through an increase in stress, depression and loneliness. Low life satisfaction influenced PIU (Senol-Durak and Durak, 2011) however, Kutty and Sreeamareddy's (2014) findings conflicted with these previous results, which suggests that compulsive internet use influences general health. Senol-Durak and Durak (2011) carried out a similar cross-sectional study using the same GHQ and Facebook Addiction Scale measures and confirmed the association between insomnia, anxiety and severe depression with Facebook addiction. The main problems with the literature were the failure to use appropriate models of wellbeing and to control for other predictors. The next section considers a specific outcome, namely, depression.

1.2.1.2. The Association between Internet Addiction and Depression

Gedam *et al.* (2016) compared medical and dental students who were internet addicts in a study that aimed to estimate the prevalence of internet addiction and examine the association between internet use and psychopathology. A sample of 597 students from medical and dental colleges was recruited, and participants completed the internet addiction test and mental health inventory questionnaires. The results revealed significant differences in the two samples in terms of internet use, depression and emotional ties.

Min-Pei *et al.* (2011), investigated the prevalence and psychosocial factors that were associated with internet addiction in a large sample of 3,616 Taiwanese university students. The prevalence of internet addiction was estimated as 15.3%. The results suggested that internet addicts have more depressive symptoms, lower self-efficacy and lower academic performance satisfaction. Also, males were more likely to be internet addicts, and an insecure attachment style was associated with internet addiction. A Japanese study of 165 healthy undergraduate participants conducted by Hirao (2015) through a cross-sectional survey assessed the mental state of internet addicts and non-internet addicts. The results revealed the prevalence of internet addiction to be 15% of the small sample, and the frequencies of depressive symptoms and flow experience were significantly higher in the internet addicts.

Yao *et al.* (2013), conducted a longitudinal study that aimed to explore whether university freshmen's mental health status and adaptation level were predictors of internet addiction. A sample of 977 Chinese college students answered the Chinese College Student Mental Health Scale (CCSMHS) and the Chinese College Student Adjustment Scale (CCSAS). In a 1-3 year follow-up study, 62 internet -addicted participants were recognised using IAT-8. The results revealed that freshmen students with characteristics of depression, anxiety, and self-contempt were found to be casual symptoms of internet addicts.

A sample of 13,588 users was recruited for a study in Korea by Whang *et al.* (2003), and the study investigated the psychological profile of internet overuse, using a "Survey on Internet Use," which consisted of four sections: demographic information, the pattern of internet use, the degree of internet dependence, and psychological wellbeing, which is adapted from The Diagnostic Scale of Excessive Internet Use. The results revealed the prevalence of internet addicts in this Korean sample was 3.5%, while 18.4% were classified as possible internet addicts or problematic internet users. Internet addiction showed a strong association with dysfunctional social behaviour, with internet addicts trying to escape from reality when they are depressed or stressed through excessive internet use. Internet addicts reported high levels of depressed mood and loneliness. Further investigation is needed to explore the direction of causality.

An experimental study was conducted by Iacovelli and Valenti (2009) on a sample of 74 undergraduate female students, with the aim of examining internet addicts' social skills, through the use of telephone communications, comparing the average internet users' likeability and rapport. The study consisted of two phases: the first phase was data collection to identify participants with high internet use, and the second phase was the experiment in which a telephone conversation was held between the two participants, where each rated the conversation in terms of rapport and likeability. The results found that excessive internet users were rated with less likeability and had less ability to

build rapport compared to average internet users. However, when participants were asked to rate themselves, there was no difference. The results also revealed that excessive internet users rated themselves as more depressed and socially reserved compared to average users.

A cross-sectional study of 3,267 undergraduate students from China, Singapore and the United States aimed to compare internet addiction, online gaming addiction, and social network addiction and the related depressive symptoms in the three countries. Tang *et al.* (2016), used the IAT, Bergan social networking addiction scale, Problematic Online Gaming Questionnaire and the 9-item Depression Scale adopted from DSM-5. The results indicated that females were more addicted to online social networks, whilst males were more addicted to online gaming. In comparison to students from Singapore and the United States, Chinese students had the highest level of depressive symptoms, although Chinese and Singapore students had a higher internet addiction rate compared to Americans.

When the results of the association between internet addiction and depression were summarised, findings from Gedam *et al.* (2016), Hirao (2015) and Iacovelli and Valenti (2009) supported the idea that internet addicts have more depressive symptoms compared to non-addicts. Internet addicts reported higher scores of depressive moods and used the internet to escape from their depression (Whang *et al.*, 2003). A cross-cultural study also found that Chinese internet addicts scored the highest on depressive symptoms (Tang *et al.*, 2016).

1.2.1.3. The Association between Internet Addiction and Lack of Sleep

The one study that investigated the association of internet addiction and sleeping found that high internet use is associated with low sleep quality. A sample of 1,788 young American adults participated in a diary study that investigated the association between sleep disturbance and social media use. The participants' social media volume and frequency were self-reported daily by writing the time spent online using items adopted from the Pew internet research questionnaire; sleep was assessed using the sleep disturbance measure. The results reported that the median time spent online on social networks was 61 minutes a day. Fifty-seven percent of the sample experienced moderate to high levels of sleep disturbance, which had been associated with high internet use (Levenson *et al.*, 2016).

1.2.1.4. The Association between Internet Addiction and Academic Performance

Although most of the internet addiction studies recruited university student samples, only two studies explored the negative influence of internet addiction on academic performance. Skues *et al.* (2016), examined the effects of loneliness, boredom and distress tolerance on PIU, in a sample of 169 undergraduate university students. The association between academic performance and PIU was also measured. The results indicated that boredom was significantly associated with PIU and played a moderator role in a model that included distress tolerance and loneliness. Low academic performance was correlated with problematic internet use. Min-Pei *et al.* (2011) conducted a study on a sample of 3,616 Taiwanese university students, and the results indicated that internet addicts have lower academic performance satisfaction.

1.2.2. The Association between Internet Addiction and Predictors of Wellbeing

Most of the current internet activities are linked to communicating, being addicted to socialising and other virtual activities, which might be a sign of an absence of, or difficulties with, real-life social experiences. The need for social support or the feeling of loneliness in internet addicts will be discussed below.

1.2.2.1. The Association between Internet Addiction Social Support Family Loneliness

Loneliness may be a result of a lack of social skills or low self-esteem and poor adjustment. Studies have explored the association of poor social support and loneliness with internet addiction. For example, a study in Iran (Naseri *et al.*, 2015) recruited a random sample of 101 female university students and had the participants complete the Multidimensional Scale of Perceived Social Support, Rosenberg's Self-esteem Scale, and the Yang Internet Addiction Test. Results revealed that individuals with low self-esteem were more likely to be internet addicts. Significant negative correlations were found between internet addiction and perceived social support, as well as family support. The main limitation of the study was its small sample. There is a need for further investigation to demonstrate the relationship between internet addiction and social support using a larger sample.

Odaci and Cikrikci (2014), investigated the association between problematic internet use, attachment styles and the subjective wellbeing of 380 Turkish university students. The participants answered questions about demographics, as well as questions from the problematic internet use scale, the relationship scale, and the subjective wellbeing scale. The results suggested a significant correlation between problematic internet use and subjective wellbeing and dismissive and preoccupied attachment styles. Individuals who have negative self-perception and positive perceptions of others, and who need to be in relationships with others can be described as having a preoccupied attachment style (Permuy *et al.*, 2010). At the other extreme, individuals who had a high positive self-perception and negative perception of others had a dismissive attachment style. Those individuals avoid establishing close relationships with others and tend to underestimate their self-worth by rejecting the value of forming proximity to others out of a fear of disapproval (Bartholomew and Shaver, 1998). The results confirmed that problematic internet use differed significantly according to gender and attachment styles. The results possibly explain the reason for problematic internet use. For participants with a preoccupied attachment, the internet is used in order to fulfil their attachment needs either by stalking or being connected to those they care about for long periods of time. For individuals with a dismissive attachment, problematic internet use may keep them busy or be a source of fulfilment to avoid needing others.

Quinones and Kakabadse (2015), investigated the association between self-concept clarity, social support and compulsive internet use of two adult samples from the US (n=268) and UAE (N=270). The participants were assessed through answering the Self-Concept Clarity Scale, Compulsive Internet Scale (2010), three items from Caplan *et al.* (2009) preference for online interaction scale, the four-item subscale of neuroticism from the Mini-IPIP and Rena et al.'s social support Likert scale. The results revealed that CIU is strongly related to low social support and self-concept clarity in the US sample. Due to cultural differences between the two samples in defining self-clarity, the results of self-concept clarity and CIU were weakly associated. Moreover, using core CIU dimensions lowered the prevalence of CIU 20-40% in US and UAE.

Kerkhof *et al.* (2011), examined compulsive internet use consequences in a sample of 190 newlywed couples. Participants self-reported on how many hours they spent online and were assessed using the compulsive internet use scale, the Dyadic Adjustment Scale for general relationship satisfaction to assess relationship adjustment, the Intimacy and Passion subscales of the Perceived Relationship Quality Components Questionnaire, the Relationship Maintenance Strategy Measure relationship-specific disclosure scale, and the partner-specific concealment scale. The study took place at three-time points; demographics were first collected, and then in spring 2007 and 2008 data was collected. At both data collection points, members of the couples answered separately. The results revealed that compulsive internet use predicts marital wellbeing and not vice versa. The occurrence of internet use was positively associated with marital wellbeing. The findings conflict with all previous studies on the impact of compulsive internet use on low levels of likability and rapport (Iacovelli and Valenti, 2009), which is important in the intimacy of the close relationship.

Yan *et al.* (2014), study investigated personality traits, perceived family functioning, recent stressful life events, and internet addiction in a sample of 892 Chinese college students. Participants' internet addiction was assessed by the Chen Internet Addiction Scale, the Adolescent Self-Rating Life Events Checklist, the Eysenck Personality Questionnaire, and the Family Adaptability and Cohesion Scale. Participants were classified into categories based on their scores (non-addict, mild internet addiction, severe internet addiction). Participants (9.98%) were classified as severe internet addiction, and 11.12% with mild internet addiction. Those with severe internet addiction had lower family functioning, high neuroticism and psychoticism, more stressful life events, and were introverts. Those with mild internet addiction had more health and adaptation problems and higher neuroticism scores. Neuroticism, adaptation problems and health problems predicted internet addiction.

Caplan (2003) introduced and tested this model, which explained the reason for online social problematic use as a gateway for lonely and depressed individuals, which led to negative outcomes associated with excessive online use. Three hundred and eighty-six (386) undergraduate students participated in the study by answering the Generalized Problematic Internet Use Scale (GPIUS), Beck Depression Inventory-II, and UCLA Loneliness scale. Results suggested that psychosocial health predicted different preference levels for online social interaction with expected negative outcomes related to problematic internet use.

An experimental study, designed by Iacovelli and Valenti (2009), used a sample of 74 undergraduate female students and aimed to examine internet addicts' social skills. The results found that excessive internet users were rated as less likeable and were less able to build a rapport compared to average internet users. However, when participants were asked to rate themselves, no differences were reported.

Another study (Lee-Won *et al.*, 2015) was conducted with 243 U.S. college students. The study aimed to investigate the role of social anxiety and the need for social assurance in problematic Facebook use. The variables measured were the social anxiety scale, the need for social assurance scale and the problematic Facebook use scale, developed and validated by Koc and Gulyagci (2013). The results revealed that social anxiety and the need for social assurance were significantly associated with problematic Facebook use. Most notably, the need for social assurance was a significant moderator of the association between social anxiety and problematic Facebook use.

Kim *et al.* (2009), study was built on the assumption that the main major motive of internet use was loneliness and depression, or generally relieving psychosocial problems. Loneliness was measured by 10 items from Russell's UCLA Loneliness Scale. Two items were used from the Self-Monitoring Scale to measure deficient social skills, and online social interaction preference was measured by three items from the Caplan Scale. The results showed that lonely individuals, or individuals with low social skills, were more likely to develop severe compulsive internet use behaviours, and experience negative life outcomes. A study designed by Tsai *et al.* (2009) explored the risk factors of internet addiction using a sample of 1,360 Taiwanese freshmen. The results revealed that internet addicts have poor social support, while Yan *et al.* (2014) study found that severe internet addicts had lower family functioning.

A qualitative study on online social networking resulted in five main themes that reflected an in-depth understanding of the compulsive use of social networks from the users' point of view. Eight university students participated in the interviews conducted by Powell *et al.* (2013). Individual responses varied from using social networks when feeling isolated in order to stay connected, to problematic internet users justifying their problematic use of social networks through its equivalence to real-life interactions.

The previous studies utilised a range of different methodologies: cross-sectional, qualitative and experimental. They all studied the association between internet addiction and social support and loneliness, using samples from different cultures, and confirmed the association of PIU and problematic Facebook use with loneliness, social anxiety, lower family functioning, low social skills and low self-esteem. An exception to this was Kerkhof *et al.* (2011) self-reported longitudinal study, which concluded that compulsive internet use was related to positive marital wellbeing.

1.2.3. Associations between Internet Addiction and Individual Differences

Individual differences such as personality, academic performance and demographics influence the association of internet addiction and wellbeing. Previous studies of social support indicated the association between internet addiction and lack of social support. Studies of individual differences and internet addiction are divided into four sub-themes which address sleep, gender differences, academic performance and personality associations with internet addiction.

1.2.3.1. The Association between Internet Addiction and Gender

A large sample of 4,852 participants was examined using the IAT and six items of the German socioeconomic panel. Lachmann's *et al.* (2016) results suggested there was a negative association between PIU and life satisfaction, with men reporting higher levels of PIU, whereas females were more sensitive to negative impacts. This confirms the results from Min-Pei *et al.* (2011), indicating that males are more likely to be internet addicts. A study by Tang *et al.* (2016) indicated that females were more addicted to online social networks, whilst males were more addicted to online gaming.

All of the prior studies confirmed that men are more likely to be internet addicts, and only (Tang *et al.*, 2016) distinguished which internet activity each gender was more addicted to.

1.2.3.2. The Association between Internet Addiction and Personality

A French study by Laconi *et al.* (2018) explored the associations between PIU and personality variables in a sample of 786 participants. The findings revealed that 20% of the sample reported PIU. When PIU was compared to non-PIU participants, those with PIU scored significantly higher in all personality disorders, depressive symptoms, and non-adaptive coping.

A study designed by Tsai *et al.* (2009) explored the risk factors for internet addiction in a sample of 1,360 Taiwanese freshmen. The participants answered a battery of questionnaires including the Chinese Internet Addiction Scale-Revision (CIAS-R), the Measurement of Support Functions (MSF), the neuroticism subscale of the Maudsley Personality Inventory (MPI), and the 12-item Chinese Health Questionnaire (CHQ-12). The results revealed that 17.9% of the participants were internet addicts. Being male, having a habit of skipping breakfast, low mental health, poor social support and obsessive personality characteristics were found to be risk factors for internet addiction in Taiwan.

Marino's *et al.* (2016) study aimed to examine a model that assessed the contribution of personality traits, motives, and metacognition to problematic Facebook use, among a sample of 815 Italian university students. Metacognitions are defined by Wells (2000) as "information individuals hold about their own cognition and internal states, and about coping strategies that impact both". Participants answered the Generalized Problematic Internet Use scale, the Big Five Questionnaire, the Internet Motives Questionnaire, and the MCQ- 30. The results revealed that coping, conformity and enhancement, which are three of the four motives, as well as cognitive confidence and negative beliefs about thoughts from metacognitions, predicted problematic Facebook use. Additionally, only extraversion scores were weakly associated with PIU.

Yan *et al.* (2014) found that severe internet addiction resulted in lower family functioning, high neuroticism and psychoticism, more stressful life events, and introversion, while mild internet addiction had more health and adaptation problems and higher neuroticism. Neuroticism, adaptation and health problems were found to predict internet addiction.

A cross-sectional study of 23,542 Norwegians (Andreassen *et al.*, 2012) explored the association between social media addiction and narcissism with self-esteem using the Bergen social media addiction scale (BSMAS), Narcissistic Personality Inventory-16 and the Rosenberg self-esteem scale. The results showed an association between social media addiction, narcissism and low self-esteem. However, the design of the study cannot identify the direction of causality (e.g., is it narcissism that is causing social media addiction or the other way around?). Tsai *et al.* (2009), results also indicated that internet addicts are more likely to have obsessive personality characteristics.

Personality traits have a significant influence on feelings and reactions in different situations. The previous studies explored the association between problematic internet use and personality. The findings confirmed the strong association with personality disorder clusters B and C, neuroticism traits, immature defensive style, psychoticism characteristics, introversion and low self-esteem. The studies featured large samples from different cultures, used different personality scales and confirmed the positive association between personality disorders and internet addiction.

1.2.3.3. The Association between Internet Addiction and Life Satisfaction and Perceived Stress

This part of the paper discusses the studies that investigated the association between internet addiction and life appraisal, with stress as a subtheme of life appraisal, where a person evaluates life satisfaction and/or their perceived stress level.

A study of 713 adults in the United States aimed to examine the relationship between pornography use and wellbeing. The results revealed that internet pornography predicted psychological distress. The model was replicated using a sample of 1,215 undergraduates, with a one-year longitudinal follow-up with 106 participants. The results revealed a significant association between perceived addiction to internet pornography and psychological distress over time (Grubbs *et al.*, 2015). Yan *et al.* (2014) also found that those with severe internet addiction had more stressful life events.

A comparison study was carried out by Ko *et al.* (2014) using a sample of 79 women diagnosed with a premenstrual dysphoric disorder (PMDD), and a control sample of 76 healthy women. Participants answered the Perceived Stress Scale, Chen Internet Addiction Scale, and the Barratt Impulsiveness Scale twice, once in the premenstrual and once in the follicular phases, to examine the association of PMDD, internet addiction and their associated factors such as impulsivity and stress. The results revealed that women with PMDD were more likely to have internet addiction and greater severity of internet addiction, perceived stress and impulsivity. Both perceived stress and impulsivity mediated the relationship between PMDD and internet addiction.

Studies on stress have confirmed the association between stress and PIU however, the studies are limited to student and female samples, and there is a need to distinguish between the types and causes of perceived stress.

1.3. Conclusions About the Literature

The literature review aimed to evaluate the studies that examined the relationship between internet addiction and wellbeing by categorising the studies into the DRIVE model structure, and then identifying gaps in the literature. Although there were some studies relating internet addiction and information overload to parts of the wellbeing process, there is an enormous absence of multivariate studies which control for other predictors of wellbeing and examine the different stages of the model which can indicate a holistic view of the influence of internet addiction on wellbeing. There is an evolving literature on the psychological impact of internet addiction. However, most of the methodology is cross-sectional, which limits the understanding of the causality and motives behind the problematic use. Research on this topic will clarify the gap in the literature and our understanding of the association between different information-age problems. The cultural influence on internet addiction has been investigated in only one study that compared both US and UAE internet users (Quinones and Kakabadse, 2015). The study findings revealed that the cultural influence on social support caused a decrease in internet addiction in the UAE sample. Further studies on cultural influence are needed to investigate other aspects of the influence of internet addiction. Most of the samples studied were university students, and there has been little recognition of the specificity of the many stresses that students face based on their university circumstances and the nature of students' life and age group. Findings might be limited to the university students, and it is debatable whether all findings can be extrapolated to all adults, specifically to working adults who might face different life stressors related to different life stages. Although previous studies have focused on university students, not all aspects of students' stress, perceived academic performance, and related stress have been investigated.

In sum, several gaps about aspects of internet addiction and wellbeing research that need additional investigation have been identified in the literature review. Notably, there is an absence of a comprehensive approach to the study of internet addiction and wellbeing, and research appears to be limited to certain perceptions, methodologies, and samples. The next section describes results from interviews aimed at exploring the awareness, motivations, and coping strategies of problematic internet users.

2. Introduction to the Interviews

The current section of the study aimed to investigate and gain an in-depth understanding of the awareness levels of problematic internet users, the motivations, and the used coping strategies. This was achieved through qualitative interviews with a sample of Kuwaiti adults who scored of problematic internet users. Exploring the causality of excessive internet use will help navigate the possible solutions. The study objectives were to 1) investigate the PIU awareness of the associated negative consequences of excessive internet use and information overload; 2) explore the motivations and causes of the excessive internet use; and 3) Investigate the used coping strategies of information overload and PIU negative effect.

2.1. Methodology

A semi-structured interview was used to explore participants' perception and awareness of problematic internet use. The interview was designed around five core questions which were used to guide the conversation about a number of issues including: the awareness of the negative impact of problematic internet use and information overload, used strategies to lower internet use, internet use time, and feelings after long hours spent online.

2.1.1. Participants

The participants were Kuwaiti adults' who were problematic internet users and scored 50+ on the IAT. Six participants volunteered to be interviewed. Three males and three females aged between 23 and 30 years. The six participants who were interviewed had diverse occupations: marketing student, postgraduate student, marketing and public relations specialist, police officer, accountant, and employee in the ministry of information.

2.1.2. Materials

Participants were asked five open questions about their awareness, coping strategies, and approaches. Demographics and IO were measured and collected at the beginning of the study. Participants were also given a debriefing and information sheet:

1. Are you aware of the negative impact of Problematic Internet Use and Information Overload on Wellbeing? If you are aware have you tried decreasing your online attachment?
2. What strategies have you used to decrease online attachment? And information overload?
3. Why do you find Internet very addictive?
4. When do use internet the most?

5. How do you feel after spending long hours online? Do you feel the negative influence of Internet Addiction and Information Overload on your wellbeing?

2.1.3. Procedures

Participants were recruited using purposive sampling. Participants who answered the IAT test provided their contact details. Six participants who had a high IA score were contacted to participate in the interviews; they agreed to volunteer. Participants answered demographic questions and completed the IO test online through Qualtrics. Interviews were recorded and lasted between 5-10 minutes. They were later transcribed by the researcher. Appropriate ethical procedures were followed.

2.1.4. Ethical Considerations

The study was ethically approved by the School of Psychology, Ethics Committee at Cardiff University. Participants were given a consent sheet and information sheet, along with a demographics and information overload test before commencing the interviews. The purpose and rationale of the study were explained and repeated at the beginning of the interview. Consent to record the interview was obtained to ensure accurate documentation.

2.1.5. Thematic Analysis

Thematic analysis is a commonly used approach in qualitative research analysis. It is used through identifying and highlighting themes within the data. The thematic analysis approach is flexible, accessible and can be applied across a range of research types. Using this method, the researcher was able to organise the data into meaningful themes (Braun and Clarke, 2006).

2.2. Results

Six main themes were extracted from the semi-structured interviews. These key themes represented a level of awareness of IO and IA and the negative impact on wellbeing. Other themes illustrated the causes of excessive internet use, coping responses, and feelings after long hours online. The themes and supporting narratives are summarised in the following sections.

2.2.1. Theme 1: Awareness of Information Overload and Internet Addiction Impact

Awareness and mindfulness is seen as the key to wellbeing by lots of clinicians. Being aware of the consequences of daily behaviour and routine is important in order to have a healthy life and wellbeing, and to develop better life choices. Awareness is also a key to change; In order to change or avoid a certain behaviour a person should be aware of the behaviour and its negative consequences to make a logical, long-term decision to avoid. Lack of awareness will leave the person performing the same negative behaviour without knowing it has an impact on their WB.

Among the persons interviewed, lack of awareness was noted as a key cause of the excessive internet use. The following three sub-themes highlighted the awareness of problematic internet users

2.2.1.1. Not aware

Interviewees answered the question of, 'are you aware of the negative impact of IO and IA on wellbeing?' with a short straightforward answer - No. This reflects the lack of awareness or even thoughts about the possibility of the negative impact of IO and IA.

2.2.1.2. I guess there is-

feeling the negative impact without compelling evidence of the cause, leaves the user or unable to link the negative impact with the cause: excessive use of internet:

I guess we are all aware of their negative impact,I think it has an impact I haven't searched. I'm not sure what it is. But there is something negative I know! {int.2}

2.2.1.3. Confusing the Negative Psychological Impact with Body Fatigue-

The nature of using the internet from a laptop or a smartphone, which causes bending of the neck, hands and wrists positions were not relaxed on the keyboard, sitting for long hours, will result in neck pain, back pain, headache, and eye dryness due to not sitting properly and watching the screen for long hours, some participants confused this with the impact of wellbeing:

Yes, I'm aware of the negative side effects of IO and IA, I feel pain while sitting long hours using the internet in my neck and in my back. {clarifying: I mean the negative impact on psychological wellbeing?} No, I'm not aware but I find myself very attached to the internet and mentally preoccupied; when I get up in the morning, I want to check the internet to see what I've missed. I don't know the exact negative effect but I think there is negative effects. {int. 1}

2.2.2. Theme 2: Information Overload Coping strategies

Participants were asked whether they knew any used strategies to decrease online attachment and responses were divided into two main sub-themes. These were strategies in coping with information overload and decreasing internet attachment strategies:

2.2.2.1. Information Overload Coping Strategy

Interviewees agreed that the only used strategies they were aware of when feeling information overload symptoms was to have a break, leave the work if possible, or to draw their attention to something else. Apparently, lack of awareness to the proper strategies to deal with information overload and the absence of information literacy skills might cause the high probability of IO reoccurrence and which causes stress and lower productivity.

I just turn it off once I feel stressed, have a break, and then I come back to it. It does help at the moment but not in the long run. {Int.2}

2.2.3. Theme 3: Controlling Internet Attachment

As a way to decrease internet attachment, participants' responses were divided into four main sub-themes which reflect:

2.2.3.1. Never Tried Cutting Down Internet Use

Some participants didn't feel the negative wellbeing effect, nor were they interested in decreasing their internet attachment. So, they had not thought about decreasing their internet use. Their responses were a simple straight forward No.

2.2.3.2. Tried and Failed

It can be difficult for problematic internet users to reduce internet use without using a studied strategy

I've quitted all social media accounts, and I've tried not to use the internet much, for almost one day it was very hard. I couldn't complete it. {int. 6}

Get myself busy, work, but my mind is preoccupied with internet activities. {int. 4}

2.2.3.3. Cut Online Game Addiction Because of Being Bored

Losing interest and feeling bored might be a good cause to cut an addiction:

I used to be an online game addict, and I used to feel I'm missing something if I'm not playing it. But I've just felt bored and cut it off. {int. 3}

2.2.3.4. Decided to Stop Using it While They are in Social Gatherings

Managing priorities, and being aware of valuable, unrepeated opportunities leads to cutting the internet if needed.

What I do now when I gather with my friends I don't use my smartphone, and I don't let them use theirs too, so we have a proper face to face communication. This is the only time I leave the internet initially. {int.5}

2.2.4. Theme four: Excessive Internet Use Causes

2.2.4.1. Spare Time

I have lots of spare time, and it gets me busy. (int.3)

This is my last course in university, I have only one module, I have lots of spare time to spend on the internet. {int.2}

2.2.4.2. Losing Self-Control

The internet is endless, it doesn't finish, and I go from something to another thing. Mostly social media and searching the net for things I don't know. {int.6}

2.2.4.3. Business and Work Related

I use the internet for my business, I'm a freelance photographer, so I search for things I don't know online, and try to stay connected as much as possible to keep track of my business. And I use social media to stay connected. {int.5}

2.2.4.4. Fear of Missing Out

This term might explain the situation of mentally being preoccupied with online activities, and completely relying on it. Missing out on real-life moment sensation and relying mainly on virtual life is a problem, where a person is no more connected to real-life activities.

When I'm online, I feel connected, but as soon as I turn it off I feel so disconnected to what is around. So I get confused and sometimes I don't get what is happening around me. I feel I'm missing out. {int.2}

2.2.5. Theme five: Using Internet Time

Participants were asked about the time they most frequently used the internet. Although all interviewees agreed that they used the internet all day through their smartphones, they found it hard to calculate the hours spent online as there are times in the day they ensure it is dedicated for internet use.

2.2.5.1. First thing in the Morning

One of the participants emphasised that the first thing she did in the morning was to check her smartphone to see what she had missed on social media and WhatsApp.

I find myself very attached to the internet, and mentally preoccupied when I get up in the morning I want to check the internet to see what I've missed. {Int.1}

2.2.5.2. Use Internet Mostly in the Afternoon

{I use the internet} If I have a break at work, mostly after work, also half an hour before sleeping. {int. 4}

2.2.5.3. Use Internet Before Sleeping

All participants agreed they used the internet before sleep for a range of 30 minutes to 3 hours. Although studies confirmed that using the internet before sleep causes insomnia and sleep disturbance, the lack of awareness or lack of control might be the main cause of excessive internet use at all times

I use it all day, but especially before sleeping, I stay on the internet for 2 to 3 hours before sleeping - reading and on social media. {int.1}

Hard to distinguish the time as I'm connected all day. But I surely spend half and hour to one hour before I sleep daily {int.6}

2.2.6. Theme Six: Psychological Impact after Spending Long hours Online

Participants were asked about their feelings after spending long hours online. Four sub-themes were generated:

2.2.6.1. No Symptoms

One participant stated they feel nothing after using the internet for a long time.

No, nothing! {Int. 3}

2.2.6.2. Body Fatigue

I use the internet on my laptop most of the time. I feel tired after spending long hours online, back pain, headache, also my eyes hurt. Psychological wise - yes, I feel it makes me tired. {int. 6}

2.2.6.3. Psychological Fatigue

Honestly, I feel psychologically tired, because of being exposed to different topics, moving quickly from one topic to another. I feel like a dose of mixed feelings, something sad and then something happy, and then ideological crush and then I just leave it! {int.1}

I feel idle and bored. Yes, I think {pointing to the negative influence of IO and IA on wellbeing} {int.5}

2.2.6.4. Different Internet use Different Feelings

Depends on what I'm doing.After I spend long hours online on social media its fine I don't feel anything, but If I'm working I feel stressed and relieved at the same time - there was lots of information, and then I'm done. I feel confused and disconnected when I'm not connected - that's the negative influence I think, maybe fear of missing out! {int. 2}

I'm might feel depressed based on the news I've read, and {Yes) I feel IO after using internet for long time. {int.4}

2.3. Discussion

The current research identified six potential patterns that helped in understanding the awareness levels, motives and coping strategies of problematic internet users. Four themes were generated from the present study. Theme 1: Awareness, Theme 2: coping strategies, Theme 3: controlling internet attachment, Theme 4: causes of internet use, Theme 5: using internet time and psychological impact after spending long hours online.

2.3.1. Awareness

Although the responses ranged from "no" to "I think there is" regarding awareness of negative association of IO and IA on wellbeing, participants were not confident about the psychological impact of IO and IA. This may explain the continuous excessive internet use by the participants, without trying to set limitations. In addition to the used coping strategies with IO and IA, in decreasing the internet attachment, there was a reflection on the lack of awareness, knowledge and information literacy of the user.

2.3.2. Causes of Excessive Internet Use

Participants stated feeling lost and unconnected if offline, and a fear of missing out as major causes of excessive social online interactions. Individuals felt isolated and incomplete if they limited their social network usage. Powell *et al.* (2013) explained that this was due to losing their social support.

Spare time and loss of control were also the causes of excessive internet use. Participants agreed that the internet kept them busy if they had lots of spare time. It was endless and hard to control, and the way it was designed (hyperlinks, easy access) made it hard for problematic internet users to control their usage.

2.3.3. Sleep Quality and Using Internet Before Sleep

Previous studies suggested smartphone addiction and internet addiction were associated with sleep disturbance and insomnia (Koc and Gulyagci, 2013) and most importantly, the impact of sleep on wellbeing and day productivity (Levenson *et al.*, 2016). Of the current sample, 66% agreed that they sometimes had good sleep quality. All participants agreed that they use the internet in the time before sleep, and the duration ranged from 30 minutes to 3 hours.

2.3.4. Different internet Use, Different Feelings

Different type of internet use results in different effects on wellbeing. Participants stated that after spending long hours online, their psychological outcome differed depending on the internet source or activity they were using.

2.3.5. Relating to Wellbeing

By analysing interviews scripts, factors of negative wellbeing (anxiety, negative feelings, low life satisfaction) negative appraisal (mental and physical fatigue) after spending long hours of using the internet were identified. Negative personality (low and self-efficacy) was associated with a failure to reduce internet hours. Negative coping (avoidance, and wishful thinking) with internet use, was identified in the problematic internet users' answers. This confirms findings from previous studies, which have shown an association between IO and IA/PIU and negative wellbeing, negative appraisal factors and the predictors of these negative outcomes.

Based on previous research, the following are the proposed solutions for dealing with problematic internet use and information overload. Internet users should be taught information literacy and proper strategies of decreasing their internet use. Failure to decrease internet attachment can be caused by low awareness and lack of knowledge about the negative effects of excessive internet use. Educational institutions, psychologists and support centres should make people aware through campaigns and courses of information literacy to ensure efficient information retrieval and productivity, and to lower stress and allow freedom from any internet attachment. Problematic internet users should be encouraged to increase offline social involvement and activities, and also to set time limits for online usage (Powell *et al.*, 2013).

3. Conclusion

The present article has presented a review of the literature on the association between problematic internet use and wellbeing. The DRIVE model and the Wellbeing Process approach were used to organise the literature. Gaps in the research were identified, and interviews carried out to provide information on topics that are important for the prevention and management of PIU. The results of the interviews revealed six themes that reflect: the awareness of PIU, coping strategies to deal with high information overload, control of internet attachment, causes of excessive internet use, preferred time for use of the internet, and the psychological effects of spending long hours online. This information can now be used to prevent PIU and to develop better management of the interaction with the internet and other media.

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