An investigation of the effects of labelling on the perception of behaviour

Heléne du Plessis

Department of Psychology

University of Cape Town

Supervisor: Johann Louw

Word Count:

Abstract: 187

Main Body: 9155

ABSTRACT

Research has long since established that how behaviour is labelled effects the perception of that behaviour. A cross-sectional design was employed in order to investigate differences in self-efficacy, readiness to change, estimated prevalence, and severity perceptions across two groups. One group was led to believe that they had an addiction to Facebook, and the other group that they had elevated, but non-pathological levels of Facebook use. One hundred participants were randomly assigned to either group and given feedback on a Facebook addiction questionnaire which served only as a manipulation and not as an indication of their actual behaviour. Various scales assessing perceptions of the behaviour after the feedback was given were then administered. As expected, the group that believed they could be diagnosed with a Facebook addiction differed significantly from the other group in terms of perceived severity and readiness to change their behaviour. There were no significant between-group differences in estimated prevalence and self-efficacy. There were also significant within-group correlations between perceived severity and estimated prevalence, as well as perceived severity and readiness to change within the 'addiction' group. The implications of these results are discussed.

Keywords: labelling theory; behavioural addiction; social media; severity; prevalence; readiness to change; self-efficacy.

ACKNOWLEDGEMENTS

I would like to acknowledge the contribution of my supervisor, Professor Johann Louw, without whose knowledge, experience and advice this thesis could not have been written.
I would also like to thank Lea-Ann Pileggi for her assistance with the statistical analyses, and Dr. Carlo Diclemente for permission to use and adapt the Alcohol Abstinence Self-Efficacy scale for this study.
Finally, I would like to thank my family and loved ones for their continued love and support.

PLAGIARISM DECLARATION

1. I know that plagiarism is wrong. Plagiarism is using another's work and to pretend that it is ones own.

2. I have used the APA as the convention for citation and referencing. Each significant contribution to, and quotation in, this essay/report/project/… from the work, or works of other people has been attributed and
has cited and referenced.

3. This essay/report/project… is my own work.

4. I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

5. I acknowledge that copying someone else's assignment or essay, or part of it, is wrong, and declare that this is my own work

SIGNATURE: _____

DATE: _____

INTRODUCTION

Research has long since established that there is a relationship between how something is labelled and how people react to it. Research in this field began with Mead and his development of the labelling theory, which stated that self-identity and behaviour are shaped by the terms used to classify them (Wellford & Triplett, 1993). This research was initially focused on the study of deviance, and how the application of this label may promote deviant behaviour. There has also been extensive research into the label of the 'mental patient', and how it effects both an individual's own perception of themselves, as well as others' perception of them (Wellford & Triplett, 1993). It was theorised that labelling an individual as 'mentally ill' would worsen their condition, make them more reliant on others, and less likely to recover. Langer and Abelson (1974) conducted a landmark study in this area which demonstrated how the application of a 'mentally ill' label to an interviewee impacted negatively on an interviewer's perception, regardless of whether the person they were interviewing was mentally ill or not. Interviewees who were labelled as having a history of mental illness were regarded much more negatively than those who were not thus labelled. It is theorised that applying certain labels to people or behaviours may provide certain cues which people look for in order to maintain their preconceptions. Although there has been extensive research into labelling theory and its applications, there has not been consistent evidence for its effects (Wellford &Triplett, 1993). Paternoster and Iovanni (1989) speculate that this lack of empirical evidence for labelling theory is due to the fact that labelling may only be effective in certain circumstances. More recently, the majority of research in this area has been done in the medical field. This research focused on how the terminology used to describe an illness effects how a diagnosis is perceived by both the patient and the clinician. Several studies have found significant results, suggesting that this is one of the potential areas in which labelling theory could indeed be applicable.

Although there has been a great deal of research done on the relationships between many of the variables under investigation, there has been very little research on the effects that labelling the behaviour has on perception in a psychological context, rather than in a medical or interpersonal context. This study attempted to address this gap in the literature by exploring the differences in behavioural perception between two groups who received different labels regarding their Facebook usage behaviour. Since there are a wide variety of variables examined in the literature and the scope of this study allowed for only a few of them to be investigated, the four variables which appeared to be of particular importance in

relevant literature were chosen for further study. The variables are self-efficacy, perceived severity, readiness to change, and estimated prevalence. The relationships between these variables will be investigated within the context of social media addiction- specifically the popular social networking site, Facebook. Between-group differences in these variables will also be investigated between two groups. One group will be labelled as having an addiction to Facebook, whereas the other group will be labelled as having non-pathological, but elevated use of Facebook.

Factors influencing the perception of severity

It has been shown that a condition is more likely to be perceived as more severe when the medical label is used instead of the lay label (Norman, Arfia & Gupta *et al*, 2003; Young, Norman & Humphreys, 2008; Erueti, Glasziou, Mar, & van Driel, 2012).This effect persists even if a full description of the disorder is provided. This suggests that it is the terminology itself that is having a direct effect on the perception of the disorder, rather than prior knowledge about the disorder. This effect is strongest with disorders that have been recently medicalised (like caffeine addiction or internet addiction), and this effect does not appear to occur with disorders that have not been recently medicalised (Young, *et al.*, 2008).

A greater emotional response has been shown to occur if a disorder is described in medical language (Young, *et al.*, 2008). It is not clear what the relationship between the perceived severity of a disorder and the level of emotion present in the response may be, however, it is reasonable to assume that the two associated with one another. Other factors which have been shown to influence the perceived severity of a disorder are the negative connotations associated with that particular disorder (Jiang & Leung, 2012; Langer & Abelson, 1974). The stigma associated with mental illness may then play an important role in how severe the disorder is considered to be.

It is clear from the literature that the severity of a disorder is a complex construct, and there are many factors which influence evaluations of severity. However, investigating all of the potential mediating variables is beyond the scope of the current study. Because of this, results will be interpreted with caution. However, based on this previous research it is plausible to consider that there will be differences in the perception of severity between a group that believes they could be diagnosed with a Facebook addiction and a group that believes they simply use Facebook more than is considered to be normative.

Factors influencing the estimated prevalence of a disorder

Within the current study, the estimated prevalence of the disorder has been defined as the predicted occurrence of Facebook addiction within a sample of one thousand people which are demographically similar to the participants. The estimated prevalence of a disorder is likely to be an indication of how vulnerable a particular individual considers themselves to be to the disorder in question (Young, Norman, & Humphreys, 2008). This is likely due to the fact that the individual is asked to estimate the prevalence of the disorder in a population similar to themselves in terms of demographic information such as age, level of education, *etc*.

There is contrasting research on the relationship between perceived severity and estimated prevalence. Research on internet addiction conducted on an Asian population (specifically in China and Japan) has found that higher levels of perceived severity were associated with increased estimations of prevalence (Ling, Chuang, & Hsiao, 2012). In contrast, other research into the perceptions of medical disorders on a Canadian population found that an increased perception of the severity of behaviour was related to decreased estimation of its prevalence (Young, Norman, & Humphreys, 2008). The authors speculate that the increased perceived severity of the disorder was associated with rarity- the more severe the disorder was perceived to be, the rarer it was considered to be. These differing results may be due to the different topics under study, or may be a result of the differing populations in which the research took place.

There is currently no research that directly investigates this relationship in a comparable sample that is able to indicate which direction the relationship is likely to take in the current study. The potential existence and directionality of the relationship between severity and estimated prevalence will be investigated in the current study, as well as differences in estimated prevalence between the two groups which received different labels.

Factors effecting readiness to change

The transtheoretical model of behaviour change states that individuals can be categorised into one of five stages of change with regard to health behaviours (Prochaska & Velicar, 1997). The stages are generally accepted as follows: ‘precontemplation’, ‘contemplation’, ‘preparation’, ‘action’ and ‘maintenance’. The exact definition of each of these stages, as well as the number of stages used depends on the context in which the model

is being used. The model also suggests that individuals progress sequentially through each of the stages, although it is common for individuals to regress to an earlier stage before reaching the 'maintenance' stage (Prochaska & Velicar, 1997). This model has been applied to a variety of health behaviours including alcohol and drug addiction, smoking cessation and exercise and it is well established within the literature.

One of the main premises of the model is that different strategies are utilised by individuals at each stage of the model (Prochaska & Velicar, 1997). This has implications for treatment and intervention strategies, as it is theorised that an intervention that is successful at one stage of the model may be ineffectual at another stage. The goal of the interventions is to get the individual to move into the next stage of the model, so that they will eventually get to the 'maintenance' phase of behavioural change.

The body of literature offers conflicting evidence on the relationship between readiness to change and perceived severity. Even though the traditional stereotype of the addict would suggest that as the behaviour increases in severity their readiness to change decreases, some research has found that the opposite occurs (Williams, Kivlaban & Saitz *et al*, 2006). This research was conducted on an alcoholic outpatient population and found that as the severity of their addiction increased their readiness to change increased, contrary to the stereotype.

Within the current study, the relationship between readiness to change and estimated prevalence, severity and self-efficacy will be examined, as well as between-group differences in readiness to change.

Factors effecting self-efficacy

Self-efficacy is theorised to effect all potential behavioural change by influencing multiple aspects of an individual, including their motivation, effort, effective action, as well as how they process information (Bandura, 1977, 1989). Self-efficacy is of particular import in the study of addictive behaviours, as it can aid in predicting future behaviours (Bandura, 1989). Self-efficacy has also been considered to be important when evaluating how likely an individual is to relapse when exposed to high risk situations. These are considered to occur when there is a heightened negative emotional state, interpersonal conflict, or social pressure. If an individual is able to retain a high level of self-efficacy in high risk situations then the probability of relapse is reduced (Marlatt & Gordon, 1985). Several studies have shown that

self-efficacy evaluations can be predictive of treatment efficacy (Diclemente, 1986). This has been demonstrated across a variety of addictive behaviours, with higher evaluations of efficacy leading to higher treatment effectiveness.

Self-efficacy evaluations have also been shown to differ significantly between patients who have been sober long- and short-term (Miller *et al*, 1986), with long-term patients having higher evaluations of self-efficacy. This suggests that self-efficacy does indeed play a role in attaining and maintaining abstinence. It is clear from the literature that there is a relationship between self-efficacy evaluations and behavioural outcomes. It has not yet been established whether this relationship is causal, and the impact of other possible mediating factors is unclear. It is especially difficult to evaluate because of the complexity of all of the factors which influence self-efficacy evaluations (Bandura, 1977). Within the current study, the relationship between self-efficacy and estimated prevalence, severity and readiness to change will be examined, as well as between-group differences in self-efficacy.

Gender as a potential mediating variable

There is some evidence in the literature which suggests that gender may be an especially important mediating factor when considering behavioural perceptions after a label has been applied.

Research on an Asian population (specifically in China) suggests that females may be more ready than males to attempt to change their internet usage behaviours when it is problematized, regardless of the perceived severity of the behaviour (Jiang & Leung, 2012). The authors suggest that this may be due to differing coping strategies among men and women, where women would possibly give more time and consideration to a mental health issue than men would. Another explanation is that the difference is due to socialization and gender roles- women may have been socialized in ways that increase how willing they are to change in contrast to men. The effect has not been explored in other contexts and could possibly be confined to Asian populations and be due to cultural influences (or a combination of both cultural and gender influences).

A few studies have been conducted in which there was no significant difference between males and females on scores of severity (Diclemente, Carbonari, Montgomery &

Hughes, 1994). However, the majority of these studies were conducted on predominantly male medical populations, and the results should be interpreted with caution.

Despite an exhaustive search, no literature on the effect on gender on the perception of prevalence could be identified.

The effect of gender on the perception of an illness is an especially important variable to consider when considering possible treatment options and interventions. If men and women perceive a labelled disorder differently, a treatment or intervention may not work equally well if administered to both groups. Gender is also an important variable in the internet addiction field, as international prevalence rates and internet use behaviour has been found to be highly variable amongst men and women, with more men being classified as addicted to the internet when prevalence studies are conducted (Hur, 2012; Shaw & Black, 2008). South African research on the demographic profiles of internet addicts concluded that internet addicts in South Africa are more likely to be male and unmarried (Thatcher & Goolam, 2005a) which is in line with international research on this topic.

However, when considering social media addiction specifically (as a subset of internet addiction) there appear to be no significant differences between males and females in how they answer the Bergen Facebook Addiction Questionnaire (Andreassen, Torsheim, Brunborg, & Pallesen, 2012). This may be an oddity with the Bergen Facebook Addiction Questionnaire, or there may be no significant gender differences. As a relatively new field, only a few studies on social media addiction could be identified, and only one was identified that examined gender. As such, no conclusions can currently be drawn about the effect of gender on the perceptions of illness.

Conclusions and Rationale for Research

Even though internet addiction, and social media addiction in particular is a relatively new field, it was considered for inclusion into the *Diagnostic and Statistical Manual* as part of a new diagnostic category- 'substance use and addictive disorders' (Starcevic, 2012). However, this was not implemented in the final draft and 'Internet use disorder' was recommended for further study before it could be included (Starcevic, 2012). This illustrates the importance of investigating part of the impact that including new disorders in the *DSM*

could have on public perception, as the *DSM* uses its own terminology and packages the problematized behaviour in a certain way.

The newest version of the Diagnostic and Statistical Manual (DSM) has substantial changes in the section on 'substance-related and addictive disorders' (DSM-V; APA, 2013). There will be two categories in this section: substance use disorders and addictive disorders. The DSM-IV categories of substance use and dependence have been combined into a single disorder wherein individuals can be placed on a continuum of severity. This was done in order to capture the range of symptoms more accurately, as well as removing the confusion that occurred with the DSM-IV-TR criteria which included tolerance and dependence.

Behavioural addictions will be captured in the separate 'addictive disorders' category. This new category currently only includes pathological gambling, although other proposed behavioural addictions have been placed in section III of the DSM, including online gaming addiction. Section III is similar to the Appendix section of the DSM-IV-TR, and the status of disorders placed in this section will be re-evaluated as new research is done. This allows for new behavioural addictions to be added.

The impact of labelling a particular behaviour as a 'disorder' or an 'addiction' has important implications for how clinicians communicate with their patients, as well as for how the patient responds to the recommended course of treatment (Erueti *et al*, 2012). If giving a behavior a medical label increases the perceived severity of a problematized behaviour, and this in turn leads to an increased readiness to change, then there are possibilities for integration into interventions. At the very least, it would be an indication that the terminology which health care providers use impacts on how their patients perceive and interpret their own behaviour.

Despite an exhaustive search, there was no identified literature directly pertaining to the act of labelling or conceptualising behaviour in a particular way and then observing its effects on the particular variables under study. Therefore, this study was exploratory in nature and it attempted to identify whether the effects which have been found with many medical diseases can also be applied to psychological disorders. The realm of social media has specifically been chosen for this exploratory research because of the relatively recent problematisation of excessive Facebook use and the dramatic increase in the use of Facebook in South Africa in recent years (Thatcher & Goolam, 2005a). This research will also attempt to address some of the identified gaps in the literature.

SPECIFIC AIMS AND HYPOTHESES

The primary objective of the study was to investigate whether the label which is applied to a particular behaviour leads to a significant difference in perceptions across groups. The key dependent variables that were assessed were perception of severity of the behaviour, readiness to change the behaviour, estimated prevalence of Facebook addiction and self-efficacy. The following specific hypotheses were examined:

H_1: Participants who believe themselves to be in the 'addiction' group will perceive their behaviour as more severe than the 'high usage' group.

H_2: Participants who believe themselves to be in the 'addiction' group will perceive their behaviour as being less prevalent in a population than the participants in the 'high usage' group.

H_3: Participants who believe themselves to be in the 'addiction' group will be more ready to change their behaviour than participants in the 'high usage' group.

H_4: Participants who believe themselves to be in the 'addiction' group will have lower self-efficacy scores than those in the 'high usage' group.

The study also aimed to replicate several findings. These include the positive correlation between readiness to change and perceived severity (Williams, Kivlaban & Saitz *et al*, 2006), and the negative correlation between estimated prevalence and perceived severity (Young, Norman & Humphreys, 2008: Ling, Chuang & Hsiao, 2012).

METHODS

Research design and setting

This study consisted of four cross-sectional comparisons of two groups: a group who was made to believe that their score on a Facebook addiction questionnaire indicated that they were addicted to Facebook, and a group who was made to believe that their score was above average, but not indicative of pathology. The method that was employed to collect data was experimental, as participants were randomly assigned to either group and the independent variable (in this case the label that was applied to the behaviour) was directly manipulated by the experimenter. The two groups were compared on scores obtained from a

survey that was a conglomeration of items from surveys that were utilised in previous research (see Diclemente, Carbonari, Montgomery & Hughes, 1994: Young, Norman & Humphreys, 2008; Saunders, Aasland, Babor *et al*, 1993; Williams, Kivlaban & Saitz *et al,* 2006) after a dummy questionnaire on Facebook use had been administered and scored.

Administration of the survey took place in the psychology department at the University of Cape Town. Students were required to sign up for a testing session online using the SRPP administration system. The venues were small classrooms or seminar rooms, and they were quiet and free of distractions. Venues allowed for between five to ten participants to be tested at a time.

Procedure

Informed consent (see Appendix A) was obtained from participants before they began filling out the initial survey. Participants were first required to complete the *Problematic Internet Usage Questionnaire* (see Appendix D). While the researcher was calculating the results of this survey, the participant would complete the section on demographics (see Appendix E). The results of the *Problematic Internet Usage Questionnaire* would actually be calculated in order to convince the participant that their feedback was based on their responses on the questionnaire. However, the researcher would not provide the participant with their actual result, but would assign the participant to either the 'high usage' group or the 'addiction' group based on the results of a random number generator. If the number was even they were assigned to the 'high usage' group and if it was odd they were placed in the 'addiction' group. After they had completed the section on demographics, they would receive a pre-written feedback paragraph (see Appendix B) based which group they were assigned to.

The number of males that were placed into each group was carefully monitored, and as it neared the end of data collection some males were systematically placed into a particular group in order to ensure that the groups had an equal number of males.

Participants were then given a second series of scales to complete. These scales measured each of the variables which were of interest in the current study- estimated prevalence, severity, self-efficacy and readiness to change (see Appendices F-I). Once this had been completed the participant was given a debriefing paragraph (see Appendix C) which they were requested to read before leaving the venue.

Ethics

Ethical approval for this study has been granted by the Ethics Committee of the University of Cape Town's Department of Psychology. Written informed consent (see Appendix A) was obtained from participants before they completed the survey. Participants were free to withdraw from the study at any time without any negative consequences. The results of the surveys are kept strictly confidential and only the primary researcher had access to the results which were stored on a password protected computer. Individuals were identified using a set of random letters and numbers, and this code could not lead to the identification of the participant after the fact. All participants were fully debriefed before leaving the testing venue.

Participants

Permission was granted by the Student Research Participation Points (SRPP) convenor to recruit students for the study. The participants had to sign up for the study online through the SRPP website. Students are encouraged to participate for coursework credit.

One hundred participants between the ages of eighteen and thirty participated in the study. The basic demographic characteristics for the 'addiction' group (n = 50) and the 'high usage' group (n = 50) are presented below in *Table 1*.

Table 1. Demographic Characteristics of the 'Addiction' and 'High Usage' Groups

Demographic Information	**'Addiction' Group (*n*=50)**	**'High Usage' Group (*n*=50)**
Age Range (Years)	18-24	18-30
Age (Years) *Mean (SD)*	19.88 (1.44)	20.18 (2.05)
Ethnicity *White: Black: Coloured: Indian: Asian*	36:9:5:0	29:14:6:1
Gender *Male: Female*	6:44	6:44

The majority of the participants were female, with a small percentage of males. There were equal numbers of males in both groups so as to control for any possible effect that gender may have on the variables under examination. Ethnicity, socioeconomic status and age were not controlled for, as this study was exploratory in nature and there is little evidence in the literature that suggests that these would have a significant effect on the outcome (Diclemente, Carbonari, Montgomery & Hughes, 1994) However, in some cases in alcohol self-efficacy research, older participants were more likely to be more confident to not drink alcohol in certain situations than younger respondents (Diclemente, Carbonari, Montgomery & Hughes, 1994). Ideally participants should be stratified by age in order to fully examine this potential effect. However, this was beyond the scope of the current study.

Ideally, this study would compare males with females across all four criteria as there is some evidence for gender differences. However, given the limited number of males available in the potential participant pool and the limited time available for the completion of the study, this was not feasible. Therefore, the current study had an equal number of males in both of the groups in an attempt to control for the effects of gender.

Inclusion criteria

There were stringent inclusion criteria set for this study, as participants' use of Facebook had to be high enough for the dummy questionnaire manipulation to be believable.

Participants had to have a current and active Facebook social networking profile. This meant that they had to have signed up for a personal profile on the Facebook social media network and that this account had not been deactivated or deleted. In addition to this, they had to access the profile at least twice daily, a minimum of three times a week.

Participants were also required to spend a minimum of two hours on Facebook per week- this time did not have to accumulate at one sitting. All of the time spent on Facebook in a one week period could add to this total.

The final inclusion criterion was that they had to have been active on Facebook for at least one year before the beginning of the study. All of these criteria were implemented in order to ensure that all participants had been using Facebook consistently an extended period of time. This was to ensure that that the manipulation regarding their score on the *Problematic Internet Usage Questionnaire* was successful.

Measures

Problematic Internet Use Scale (PIUQ)

This scale was developed by Thatcher and Goolam (2005) and was adapted for use in the study by substituting the word 'internet' for the word 'Facebook'. All of the original questions were included in the questionnaire and items are dichotomous with either 'yes' or 'no' as the available responses.

The PIUQ demonstrated good internal reliability ($\alpha = 0.9$), and strong correlations with various other established predictors of problematic internet use (Thatcher & Goolam, 2005b). There was also some evidence for convergent validity, as it correlated significantly with other measures of internet addiction.

In the study this scale served as a manipulation in order to convince the participants that their use of Facebook was being assessed (see Appendix D), and their actual scores on this measure were not revealed to the participant.

Self-efficacy

Self-efficacy was assessed in this study using an adapted version of the Alcohol Abstinence Self-Efficacy Scale (AASE) developed by Diclemente, Carbonari, Montgomery & Hughes (1994). This scale is an integration of Bandura's self-efficacy theory and the transtheoretical stages of change model (Diclemente, Carbonari, Montgomery, *et al,* 1994), and serves to assess an individual's confidence to abstain from a behaviour in a variety of situations, as well as temptation to drink. This measure was adapted from a much longer version of the AASE in order to increase ease of administration and to develop a measure that could be used as part of a battery of tests. The AASE was decreased from forty nine to twelve items. It is a self-report measure with a five point Likert-type scale where the respondent has to indicate their confidence that they will not use alcohol the described scenarios. All twelve items were included in the study and the items were adapted substituting the words 'alcohol' and 'drinking' for the word 'Facebook'(see Appendix x).

Convergent and divergent validity has been established for the shortened twelve item version of the AASE (Diclemente, Carbonari, Montgomery *et al,* 1994), as well as high internal consistency (Spearman and Brown = .95). No substantial gender differences have

been demonstrated (Diclemente, Carbonari, Montgomery, *et al,* 1994) which suggests that the scale can be utilised to effectively test self-efficacy in both men and women. However, these conclusions were drawn from testing on a predominately white sample, so there may be some cultural differences which are not accounted for by this measure.

Estimated Prevalence

The estimated prevalence of Facebook Addiction was assessed using a similar protocol that Young, Norman and Humphreys (2008) used in their study comparing newly-medicalised and established disorders. As in the earlier study, a single item was used that required the respondent to indicate how many individuals in a population of one thousand people similar to themselves they thought were likely to have the disorder within the next year (see Appendix I). Possible responses were on a Likert-type scale and each response category increased in increments of approximately two hundred. This variable is likely to be an indication of perceived vulnerability to the disorder (Young, Norman & Humphreys, 2008)- a higher estimated prevalence indicates a higher likelihood of the respondent contracting the disorder.

Perceived Severity

Perceived severity of the behaviour was assessed using an adapted version of the Alcohol Use Disorders Identification Test (AUDIT) that was developed by the World Health Organisation (see Appendix G). This particular version of the AUDIT was adapted by Saunders, Aasland, Babor *et al* (1993) from a much longer version in order to facilitate ease of administration for test batteries.

This scale is used primarily within the medical field in order to classify alcohol use into a category of severity based on self-report.

Six of the items on the ten item scale were easily adapted to the purposes of the study by substituting the word ‘alcohol’ for the word ‘Facebook’. Four of the items were excluded because they related to the amount of alcohol consumed on a given day, or because they referred to a physiological effect of alcohol (such as impaired judgement or memory loss) which were difficult to convert to an equivalent amount or effect for Facebook addiction. Possible scores in this section ranged from 1 – 24, with higher scores indicating a higher level of severity. Items were in a self-report Likert-type format, and required participants to

indicate how often the behaviour that was described occurred, usually within the time period of one year.

The twelve item version of the AUDIT has been tested in a variety of counties, including Australia, Kenya, Mexico, Bulgaria, Norway, and the United States of America. Analysis of the results indicated that there is high interscale reliability, suggesting that this scale is relatively free of cultural influence (Saunders, Aasland, Babor *et al*, 1993). The AUDIT is also able to accurately classify subjects into both hazardous and non-hazardous use categories in a variety of situations.

Readiness to change

The protocol used in the study was adapted from the protocol used by Williams, Kivlaban and Saitz *et al* (2006) in their research on readiness to change in patients who screen positive for alcohol misuse. They used a three item scale based on Prochaska and Diclemente's transtheoretical model in order to categorise the patients into one of the three original categories of the scale. The transtheoretical model is primarily used in this setting in order to guide interventions based on the category which patients fall into. The scale was easily adapted for the purposes of this study by substituting the word 'alcohol' for the word 'Facebook'. These items were presented in the form of a flow diagram (see Appendix H), with respondents receiving a score between one and seven. Depending on the answers which are chosen, some respondents may answer only one question, or two, or all three. Typically, a lower score indicates a higher readiness to change. Scores between one and three would likely indicate that the respondent is in the action phase; scores between four and six are indicative of the contemplation phase; and a score of seven suggests that the respondent is in the precontemplation phase of the model. A staging algorithm is used in order to classify a respondent into a category.

This scale demonstrated good convergent validity with the longer readiness to change scale developed by Rolnick *et al* (Williams, Kivlaban & Saitz *et al*, 2006). This suggests that the use of only three questions does not impair the ability of the scale to accurately classify the respondents into the correct category.

RESULTS

Data analysis

Descriptive statistics were analysed first in order to characterise the scores received on each of the variables. The main analyses concerned group differences in self-efficacy, perceived prevalence, readiness to change, and perceived severity. All statistical analyses were conducted using SPSS version 21.0. Statistical power calculations were done on G*Power version 3.1.7. The significance threshold was set at 0.05.

Independent samples t-tests were conducted on the data. All assumptions underlying the tests were upheld, except for the self-efficacy variable which was not normally distributed. A natural logarithm transformation improved the distribution of the data, but the data was still not normally distributed enough for this assumption to be met.

Given the number of *t*-tests that were conducted, there is an increased possibility of Type 1 error. However, since the majority of the variables had all of their assumptions met and the study is exploratory in nature, alpha was not adjusted to control for Type 1 error.

Pearson's correlations were conducted to further investigate the relationship between the variables within each group. As with the previous tests, all assumptions within the variables were met, except for the self-efficacy variable.

A chi-squared analysis was conducted on the categorical data, namely the estimated prevalence variable. As the data for this variable is categorical, the likelihood of having data that is normality distributed is low. However, examination of a histogram of the responses suggests that the data is roughly normally distributed. All other assumptions underlying this test were upheld.

Estimated prevalence

A chi-squared test of independence was conducted to determine whether the category of perceived prevalence was dependent on whether the participant was assigned to the addiction group or the high usage group. The analysis did not receive a significant result, suggesting that perceived prevalence is not contingent upon group assignment in this sample, χ^2 (3,*N*=100) = 3.79, *p* = .285.

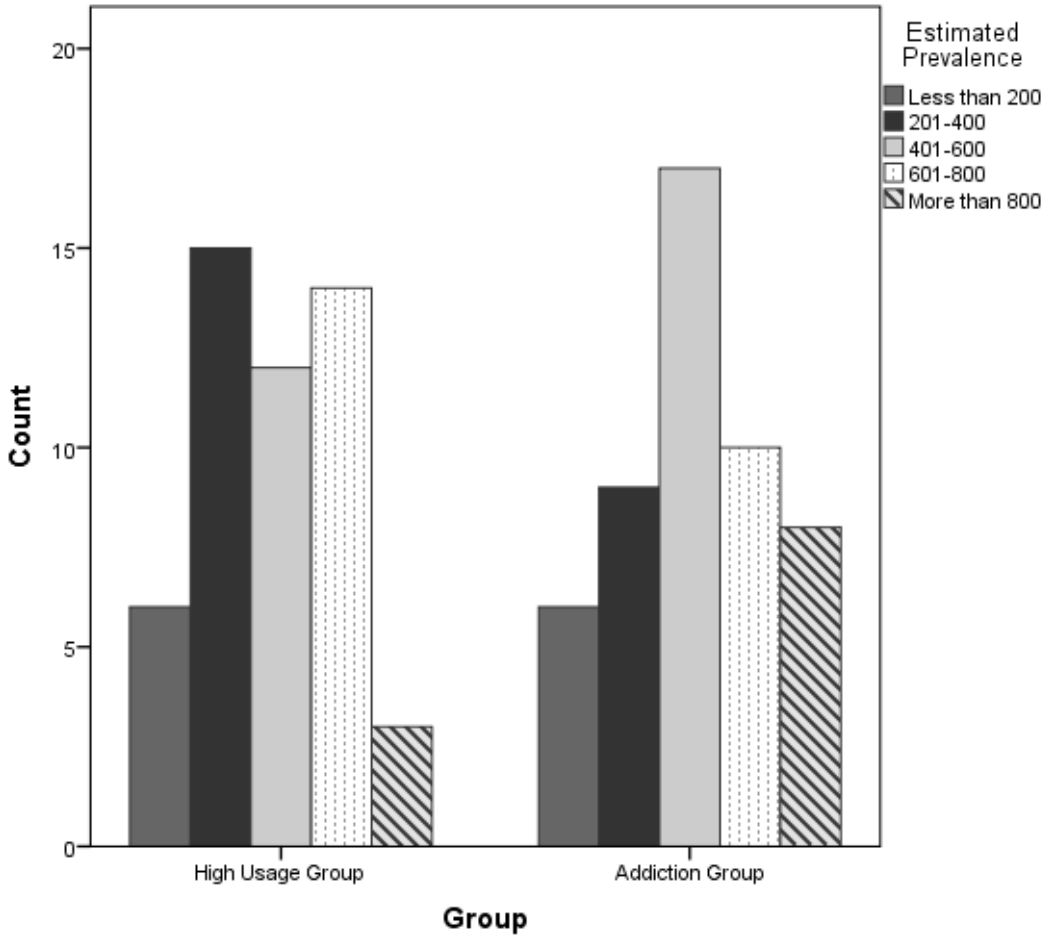

Figure 1. Frequency of each category of estimated prevalence according to group

Perceived severity

The result of a two-tailed independent samples *t* test was statistically significant, $t(98) = 1.89$, $p = .041$, with the participants who believed they were in the addiction group ($M = 10.34$, $SD = 3.32$) having a significantly higher level of perceived severity than the participants assigned to the high usage group ($M = 8.86$, $SD = 3.8$). The addiction group perceived their behaviour as being significantly more severe than the high usage group. However, the effect size was small, $r = .18$. A post-hoc statistical power analyses revealed that there was relatively low statistical power for this relationship (*Power (1-β error probability)* = 0.14).

Readiness to change

The result of a two-tailed independent samples *t*-test was statistically significant, $t(98) = .018$, $p = .047$, with the participants that were assigned to the addiction group

(M = 3.88, SD = 2) scoring significantly lower on readiness to change measure than the high usage group (M = 4.64, SD = 1.75). This result could indicate that there is a significant difference between the groups in readiness to change, with those in the addiction group being more ready to alter their behaviour than those in the high usage group. However, the effect size was negligible, r=.01. A post-hoc statistical power analyses indicated that there was very low power associated with this test (*Power (1-β error probability)*= 0.05.

Self-efficacy

The result of a two-tailed independent samples t-test was not statistically significant, $t(98) = .41$, $p = .537$. This result suggests that there is no significant difference in measured self-efficacy between the participants assigned to the addiction group and those assigned to the high usage group.

Within-group variable correlations

Pearson's correlations were conducted for the variables *self-efficacy, estimated prevalence, readiness to change* and *perceived severity*. As there were conflicting views in the literature as to the direction of the possible relationships between the variables, all tests were run as two-tailed tests. Inspection of the intercorrelation matrix (see Table 2) revealed statistically significant relationships between *perceived severity* and two other variables, *estimated prevalence* and *readiness to change*.

Perceived severity was positively correlated with *estimated prevalence*, $r = .46$, $p = .001$, which is suggestive of a relationship that is of moderate strength between the variables. As the perceived severity increases in the 'addiction' group, the estimated prevalence increases as well. This indicates that individuals who perceived their own behaviour as more severe were more likely to estimate a high level of prevalence for Facebook addiction.

R^2= 0.212, suggesting that perceived severity accounts for 21% of the variance of scores for estimated prevalence. The 95% confidence intervals for this correlation are $0.439 \leq p \leq 0.218$. This means that the strength of the correlation for the population is 95% likely to fall between .21 and .43.

Perceived severity was negatively correlated with scores on *readiness to change*, $r = -.36$, $p = .011$. This correlation was also of moderate strength. This indicates that as the

perceived severity of the behaviour increased in the 'addiction' group, the scores on readiness to change decreased (indicating a greater readiness to change). R^2=0.1296, indicating that perceived severity accounts for 12.96% of the variance in scores for readiness to change. The 95% confidence intervals for this correlation are $-0.572 \leq p \leq -0.102$. This indicates that the strength of the correlation for the population is 95% likely to fall between -.1 and -.57.

Table 2. Intercorrelations between Self-efficacy, Perceived Prevalence, Readiness to Change, and Perceived Severity for Addiction Group

Variable	Self-efficacy	Estimated Prevalence	Readiness to Change	Perceived Severity
Self-efficacy	-			
Estimated Prevalence	-.044	-		
Readiness to Change	-.106	-.138	-	
Perceived Severity	.008	.464**	-.355*	-

*$p < .05$. ** $p < .01$

The same Pearson's correlations were conducted on the high usage group. These correlations were also run as two-tailed tests. Inspection of the intercorrelation matrix (see Table 3) revealed statistically significant relationships between *self-efficacy* and *estimated prevalence*, and between *perceived severity* and *estimated prevalence*.

Estimated prevalence was positively correlated with *self-efficacy*, $r = .28$, $p = .046$, suggesting that there is a relationship present that is of weak to moderate strength. This indicates that as the estimated prevalence increased in the 'high usage' group, the self-efficacy scores also increased. R^2=0.07, which indicates that *self-efficacy* accounts for only 7% of the variance in scores for *estimated prevalence*. The 95% confidence interval for the population is $0.51 \leq p \leq 0.014$. This indicates that the strength of the correlation for the population is likely to fall between .01 and .51.

Estimated prevalence was also positively correlated with *perceived severity,* $r = .336$, $p = .017$. This correlation is of moderate strength. This indicates that as the estimated prevalence increased in the 'high usage' group, the perceived severity also increased.R^2=0.112, which indicates that *perceived severity* accounts for 11.2% of the variance in *estimated prevalence*

scores. The 95% confidence interval for the population is $0.554 \leq p \leq 0.075$. This indicates that the strength of the correlation for the population is likely to fall between .07 and .55.

*Table 3.*Intercorrelations between Self-efficacy, Perceived Prevalence, Readiness to Change, and Perceived Severity for High Usage Group

Variable	Self-efficacy	Estimated Prevalence	Readiness to Change	Perceived Severity
Self-Efficacy	-			
Estimated Prevalence	.283*	-		
Readiness to Change	-.257	-.057	-	
Perceived Severity	-.064	.336*	-.249	-

**p <.05, ** p < .01*

DISCUSSION

The aim of this study was to investigate the relationship between the application of a label to behaviour and the resulting perception of that behaviour. This is the first study to directly investigate the effect that labelling someone as 'addicted' has on within-group perception of estimated prevalence, perceived severity, self-efficacy and readiness to change, as well as the potential differences in these variables between groups- with comparisons between a group who believed that they had a Facebook addiction, and a group who believed that they had non-pathological, but elevated use of Facebook. This study replicated findings in a previous study concerning the relationship between perceived severity and readiness to change (see Williams, Kivlaban & Saitz *et al*, 2006). This study also replicated the findings of Ling, Chuang and Hsiao (2012), showing a positive correlation between the estimated prevalence of a disorder and the perceived severity of that disorder. Results confirm only some of the hypotheses tested by this study. There were significant differences between the groups for perceived severity and readiness to change, but not for self-efficacy or estimated prevalence. Therefore, only some of the hypotheses were confirmed by the results of the study.

Perceived severity differences between 'addiction' and 'high usage' groups

The results obtained in the study suggest that there may be a significant difference between the groups in terms of perceived severity of their behaviour after a label (either 'addiction' or 'above average use') had been applied. The group that had been labelled as 'addicted' rated their Facebook use behaviour as being significantly more severe than the 'high level of use' group. This corresponds with the research on medical disorders (see Young, Norman and Humphreys, 2008; Norman, Arfia and Gupta *et al*, 2003; Erueti, Glasziou, Mar *et al*, 2012). All of these previous studies found that the language used to describe the disorders influenced how severe the disorder was thought to be. When the disorder was described using medical terminology the disorder was perceived as being more severe than when lay language was used. The current study found a similar effect. The word 'addiction' can be thought of as psychological medical language, and when this term was applied it was perceived as being more severe than when the behaviour was described in other terms. It is likely that this difference is due to the label that was applied, as the only true difference in the feedback that was given for the dummy questionnaire is the label that was applied. The body of literature offers little explanation for why this effect occurs, other than speculation.

Even though this result replicates previous findings, the *p*-value borders on non-significance (p=.041), and the effect size was relatively small (r=.18). As the effect size is an indication of the magnitude of the difference between the two groups, this may not be significant in the larger population. However, as the statistical power associated with this test was also low $(1-\beta=0.14)$, there may not have been enough power in order to detect a significant effect if it was present. It is also important to consider that the significant result may be due the increased risk of Type 1 error as a result of the multiple *t*-tests that were conducted on the data. Therefore, the results obtained from this particular test are inclusive, and additional research with a larger sample size will have to be conducted in order to investigate this potential effect further.

Differences in the level of readiness to change between the 'addiction' and 'high usage' groups

Results indicate that there was a significant difference in readiness to change scores obtained by the 'addiction' group and those obtained from the 'high usage' group. The 'addiction' group received significantly lower scores on the readiness to change ratings. This

indicates that the group labelled as having an 'addiction' was significantly more ready to change than those labelled as having above average use. This result is consistent with Williams, Kivlaban and Saitz' (2006) findings in primary care patients who screened positive for alcohol misuse. Patients whose alcohol use indicated that they had an active alcohol use disorder were more likely to indicate a readiness to change than those who were not currently eligible for an alcohol misuse diagnosis. Although this research was not directly investigating the relationship between readiness to change and the application of a label, one can tentatively conclude that there are indications that such a relationship exists, especially when the results of the current study are taken into account. However, the significant result found by the current study (p=.047) is by no means definitive, especially when the small effect size is taken into account (r=.01). An effect size this small indicates that there is likely to be no significant effect if this was applied to a larger population. The significant result may have been due to type 1 error because of the multiple t-tests that were conducted on the data. The statistical power associated with this test was also low (0.05). These results suggest that this variable could benefit from further investigation with a larger sample size in order to clarify whether this relationship between readiness to change and the application of a label is present.

Correlation between perceived severity and readiness to change in the 'addiction' group

The results of a Pearson's correlation indicate that there is a significant negative correlation (r = -.36, p = .011) between the perceived severity of Facebook use behaviour and the readiness to change within the group that received the 'addict' label. Since lower scores on the measure used to assess readiness to change indicate a higher readiness to change, this result suggests that as the perceived severity of the behaviour increases, the readiness to change the behaviour increases as well. This correlation was of moderate strength, and this result corresponds to results from previous studies (see Diclemente, Carbonari & Montgomery *et al*, 1994; Williams, Kivlaban & Saitz *et al*, 2006).

Even though this research confirmed previous findings on the correlation between perceived severity and readiness to change, no conclusions can be drawn as to the potential directionality or causality of this relationship. The current study's design does not provide information on whether the higher perceived severity leads to a higher readiness to change, or whether a higher readiness to change leads to a perception of increased severity.

As only 12.96% of the variance in readiness to change is accounted for by perceived severity, it is highly likely that there is a third variable which contributes significantly to this relationship. There may be several other variables which also contribute which have not been included in the present study. This possibility has not been explored in the literature and this may prove to be an interesting avenue for future research. The calculated 95% confidence intervals for this correlation are relatively wide, with the population statistic expected to fall between -.1 and -.57. Therefore, it is difficult to gauge what the potential strength of this correlation in the population may be, as the confidence interval encapsulates both a very weak negative correlation and a fairly strong negative correlation.

Correlation between perceived severity and estimated prevalence in both the 'addiction group' and the 'high usage' group

This correlation occurred in both the 'addiction' and the 'high usage' group. In both groups the correlation was positive, although there appeared to be a stronger relationship between the variables in the 'addiction' group (r=.46, p=.001) than in the 'high usage' group (r=.36, p=.017). In both cases the estimated prevalence of Facebook addiction increased as the perceived severity of the behaviour increased. This indicates that individuals who perceived their own behaviour as more severe were more likely to estimate a high level of prevalence for Facebook addiction.

If the estimated prevalence is indeed an indication of the perceived vulnerability to the disorder in question as Young, Norman and Humphreys (2008) suggest, this result may indicate that as the perceived severity of the behaviour increases, the perceived vulnerability to the disorder increases regardless of the label that is applied to the behaviour. The current study has replicated the findings of Ling, Chuang and Hsiao (2012) in the field of internet addiction, which found that as the estimated prevalence of the disorder increased, the perceived severity increased as well. The current study has findings that directly contradict those of Young, Norman and Humphreys (2008) in the field of medical disorders and influences on the perception thereof. Their results indicated that as the perceived severity of a disorder increased, the estimated prevalence decreased, suggesting that disorders that were perceived to be more severe were also considered to be more rare.

However, even though this relationship appears to be present in both of the groups, the strength of the correlation is greater in the 'addiction' group. When the amount of variance explained by the relationship is taken into account, the 'addiction' group (R^2=0.212)

has a greater amount of explained variance than the 'high usage' group (R^2=0.112). There is 10% more explained variance in the 'addiction' group than in the 'high usage' group, indicating that there is a better fit between the variables in within the 'addiction' group. Examination of the confidence intervals for the correlation suggests that the range for the 'addiction' group (between .21 and .43) is much narrower than the 'high usage' group (between .07 and .55) at a 95% level of confidence. This suggests that the 'addiction' group confidence interval is more likely to give a precise indication of what the true population statistic may be, whereas the 'high usage' confidence interval ranges from a negligible correlation, to one of moderate strength.

As with all correlations in this study, no conclusions can be drawn about the directionality or causality of this relationship. The current study's design does not provide information on whether a high estimated prevalence leads to greater perceived severity, or whether a higher perceived severity leads to a higher estimation of prevalence.

In both the 'addiction' and the 'high usage' group, only a relatively small proportion of the variance in scores is explained by the relationship between estimated prevalence and severity. It is likely that other variables not included in the present study influence this relationship.

Limitations and future directions

One of the limitations of the study is the heavy reliance on the transtheoretical stages of change model in two of the four measures used in this study, specifically the AASE and the flow diagram used by Williams, Kivlaban and Saitz *et al* (2006) in their study on alcohol misuse. There are several problems with the transtheoretical model which may indicate that any results need to be interpreted with caution. Firstly, many of the definitions which are used to classify individuals appear to be arbitrary (West, 2005). For example, someone who is planning to stop drinking alcohol within the next thirty days may be placed in the 'contemplation' phase, whereas someone planning to stop within thirty one days could be placed in the 'precontemplation' phase. This suggests that the categories may not be as meaningful as they are implied to be, and there may not actually be a substantial difference between individuals in varying stages. The model may not be strictly sequential either-individuals have moved rapidly from on stage to the next (West, 2005).

The transtheoretical model also assumes that individuals make stable and coherent plans for the future. Research by Larabie (2005) suggests that smokers may spontaneously make an attempt to quit, suggesting that the motivation to quit may be a more dynamic process than is captured by the transtheoretical model. Even though this study focused only on smoking cessation, it is likely that the results may translate to other realms of behavioural change.

A direct link between attitude and behavioural change is also assumed by the model (West, 2005). This means that it is assumed that if an individual is thinking about altering their behaviour and has made plans to do so, then behavioural modification will follow. Contrary to this, there has been research that suggests that attitudes towards a particular behaviour can be altered without any actual behavioural modification taking place (van Sluijs, van Poppel & van Mechelen, 2004).

Despite all of these problems, there is currently no alternative model for conceptualising this particular variable that does not have problems of its own (West, 2005). Alternatives include the health belief model and the theory of planned behaviour. Despite the problems inherent in the transtheoretical model, it has remained very popular within the field of behavioural change and addiction and most of the measures assessing readiness to change make use of it (West, 2005).

A major limitation of this study was the exclusion of gender as a variable. It is clear from the literature that gender may play a significant role in determining how behaviour is perceived, although this has not been investigated in any great detail. It is also difficult to gauge the potential effect of this variable as the majority of the research was conducted in the field of alcohol or substance addiction where the majority of the participants were male, or in the field of internet addiction and online gaming addiction, where the participants were also mainly male. Unfortunately, the nature of the sample in this study and time limitations prevented this study from including gender as a variable. Future research in this area could focus on determining whether there are significant gender differences in interpreting feedback regarding behaviour, as well as investigating how it may interact with other variables.

Another potential limitation of the study is the measures that were used. All of the scales had to be adapted from protocols used in other research. The majority of the scales were previously used in alcohol addiction research and included subscales on physical

dependence and withdrawal effects which may not be applicable to a behavioural addiction like social media addiction. The separation of substance addictions and behavioural addictions is evident in the DSM-V, where gambling addiction is in a category (specifically 'addictive disorders') separate from substance addictions. This separation suggests that the scales that were adapted for use in this study may not prove to be as valid and reliable as using a scale that had been specifically designed for use with social media addiction. However, since there was no such scale available that would measure the variables that were of interest in this study, some compromises had to be made. Future research could focus on developing such a measure.

CONCLUSION

The differences in perception after labelling a behaviour as either an addiction or as occurring more often than the norm was investigated in a sample of one hundred students from the University of Cape Town. The group that was labelled as having a Facebook addiction received significantly different scores on readiness to change and perceived severity than those assigned to the 'high usage' group. Participants that were labelled as having an addiction were more likely to perceive their behaviour as more severe, and to be more ready to change. However, in both cases the effect size was small and this suggests that it may not translate to a significant effect in reality. There were also significant correlations within the group labelled as having an addiction, specifically a positive correlation between perceived severity and estimated prevalence, and a negative correlation between perceived severity and readiness to change. Within the group labelled as engaging in Facebook behaviours more often than the norm for their age group there was a significant positive correlation between self-efficacy and estimated prevalence, as well as between perceived severity and estimated prevalence. These results indicate that labelling may have an effect on how behaviours are perceived as well as how these variables interact with one another within a label. As can be seen, research in this particular area of behavioural perception is still in its infancy. There are myriad of factors that may mediate or co-vary with the variables that were investigated, and further investigation of these phenomena is necessary in order to gain a clearer understanding of how labelling behaviour in a particular way may influence how it is perceived by an individual. This would be useful in informing what kind of terminology should be used in diagnostic manuals like the *DSM* or the *ICD*, as well as informing possible

treatments through a clearer understanding of how the variables interact with one another to shape perception.

References

Andreassen, C.S., Torsheim, T., Brunborg, G.S., & Pallesen, S. (2012). Development of a Facebook Addiction scale. *Psychological Reports, 110(2)*, 501-517.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders, (5th ed.)*. Washington, DC: Author.

Bandura, A. (1977). Self-efficacy- Toward a unifying theory of behavioural change. *Psychology Review, 84,* 191-215.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44,* 1175-1184.

Diclemente, C.C. (1986). Self-efficacy and the addictive behaviours. *Journal of Social and Clinical Psychology, 4*, 302-315.

Diclemente, C.C., Carbonari, J.P., Montgomery, R.P.G., & Hughes, S.O. (1994). The Alcohol Abstinence Self-Efficacy Scale. *Journal of Studies on Alcohol, 55*, 141-148.

Erueti, C., Glasziou, P., Mar, C., & van Driel, M.L. (2012). Do you think it's a disease? A survey of medical students. *Biomed Central Medical Education, 12(19)*, doi:10.1186/1472-6920-12-19.

Hur, M.H. (2012). Current trends of Internet Addiction disorder research: a review of 2000-2008 Korean academic journal articles. *Asia Pacific Journal of Social Work and Development, 22(3),* 187-201.

Jiang, Q. & Leung, L.(2012). Effects of individual differences, awareness-knowledge, and acceptance of internet addiction as a health risk on willingness to change internet habits. *Social Science Computer Review, 30(2)*, 170-183.

Langer, E.J. & Abelson, R.P. (1974). A patient by any other name…: clinician group difference in labeling bias. *Journal of Consulting and Clinical Psychology, 42(1)*, 4-9.

Larabie, L.C. (2005). To what extent do smokers plan quit attempts? *Tobacco Control, 14,* 425-428.

Ling, I., Chuang, S., & Hsiao, C. (2012). The effects of self-diagnostic information on risk perception of Internet Addiction Disorder: self-positivity bias and online social support. *Journal of Applied Psychology, 42(9)*, 2111-2136.

Marlatt, G.A. & Gordon, J.R. (1985).(Eds.) Relapse prevention: Maintenance strategies in the treatment of addictive behaviours, New York: Guildford Press.

Miller, P.J., Ross, S.M., Emmerson, R.Y., Todt, E.H. (1989). Self-efficacy in alcoholics: Clinical validation of the Situational Confidence Questionnaire. *Addictive Behaviour, 14*, 217-224.

Norman, G.R., Arfia, B., Gupta, A., Brooks, L.R. & Eva, K.W. (2003). The privileged status of prestigious terminology: impact of 'medicalese' on clinical judgements. *Academic Medicine, 78*, 82-84.

Paternoster, R., & Iovanni, L. (1989). The labeling perspective and delinquency: An elaboration of the theory and an assessment of the evidence. *Justice Quarterly*, *6*(3), 359-394.

Prochaska, J.O. & Velicer, W.F. (1997). The transtheoretical model of health behaviour change. *American Journal of Health Promotion, 12*, 38-48.

Shaw, M., & Black, D.W.(2008). Internet Addiction definition, assessment, epidemiology and clinical management. *CNS Drugs, 22(5)*, 353-365.

Starcevic, V. (2012). Is Internet Addiction a useful concept? *Australian and New Zealand Journal of Psychiatry, 47(1)*, 16-19.

Thatcher, A., & Goolam, S. (2005a). Defining the South African internet 'addict': prevalence and biographical profiling of problematic internet users in South Africa. *South African Journal of Psychology, 35(4),* 766-792.

Thatcher, A., & Goolam, S.(2005b). Development and psychometric properties of the problematic internet use questionnaire. *South African Journal of Psychology, 35(4),* 793-809.

Van Sluijs, E.M., van Poppel, M.N. & van Mechelen, W. (2004). Stage-based lifestyle interventions in primary care: Are they effective? *American Journal of Preventative Medicine, 26,* 330-343.

Wellford, C. F., & Triplett, R. A. (1993). The future of labelling theory: Foundations and promises. *New directions in criminological theory*, *4*, 1.

West, R. (2005). Time for a change: putting the transtheoretical (stages of change) model to rest. *Society for the Study of Addiction, 100*, 1036-1039.

Williams, E.C., Kivlaban, D.R., Saitz, R., Merril, J.O., Achmeyer, C. E., McCormick, K.A. & Bradley, K. A. (2006). Readiness to change in primary care patients who screened positive for alcohol misuse. *Annals of Family Medicine, 4,* 213-220.

Young, M.E., Norman, G.R., & Humphreys, K.R. (2008). The role of medical language in changing public perceptions of illness. *Plos One, 12(3)*, 1-6.