PROFESSIONAL DOCTORATES

Relationships Among Alcohol Use, Emotion, Motivation, and Goals

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Relationships Among Alcohol Use, Emotion, Motivation, and Goals

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School of Psychology

Bangor University

Summary

The purpose of the thesis is twofold (a) to review the relationship between alcohol use and emotion regulation, and (b) to develop and evaluate a newly designed questionnaire called the Brief Aspirations and Concerns in Life Inventory (BACLI) for measuring the structure of an individuals motivation for obtaining their life goals. First, this thesis presents a review of alcohol's roles in regulating emotions. This review paper proposes an integration of Cox and Klinger's (1988, 1990, 2004) motivational model of alcohol use and Gross and Thompson's (2007) model of emotion regulation strategies. It aims to further the understanding of alcohol's role in regulating emotions. Tentative conclusions are made that alcohol can be used to *enhance* some emotion regulation strategies, albeit in many cases maladaptively. The empirical paper compares the outcomes and relationships between the BACLI questionnaire and a well-established and comprehensive Personal Concerns Inventory (PCI; Cox & Klinger, 2000). It also examines the relationship between other motivational and emotional variables and alcohol use and problems. The BACLI provided a good alternative to the PCI. In line with previous research, motivational variables were predictive of alcohol use and problems. Difficulties with emotion regulation also predicted greater drinking problems. Finally, these papers are discussed in terms of their implications for clinical psychology.

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Acknowledgements

I would like to thank the numerous people who kindly assisted me in the completion of this thesis. First, I wish to thank my supervisor Professor W. Miles Cox for the help and guidance he gave me. His diligence, hard work, and eye for detail assisted me greatly. As ever, Dr. Steve Hosier and Mr Simon Cook (PhD student), of the Bangor Alcohol Research Group, patiently provided me with the helpful space to air my ideas!

I also thank the North Wales Clinical Psychology Programme team for all their help. The research team gave useful and helpful advice on the early generation of ideas for the thesis. Dr. Dave Daley provided helpful support and advice throughout the challenging research process. In particular, I would like to thank Dave and Lynn Moran (Programme Secretary) for their help in resolving the issue of participant printer credit costs with the School of Psychology (i.e., reducing it from £1200 to £400!). I also thank the administration team of Sharon Fraser, Dawn Thompson, Lynn Moran, and Sharon Owen for ensuring the smooth running of the project and all other aspects of getting through the programme smoothly.

My thanks go to the School of Psychology, Bangor for allowing me to access the student participation panel. I am grateful to the staff at the Wheldon Building, particularly Sheila McCabe, who was extremely helpful with room bookings and all aspects of using the research panel. I am very grateful to all the research participants for taking the time and trouble to take part in the experiment—I was astounded by the goodwill of so many people.

I would also like to thank my Training Coordinator, Drs Carolien Lamers, for all her help and support during my three years on the Clinical Programme. Her guidance was immeasurable.

Finally, I wish to thank my family for their love, support, and understanding after, yet again, putting them through three years of struggle. I promise not to do it again!

SCHOOL OF PSYCHOLOGY ETHICAL APPROVAL FORM

Please complete all parts to this form.
Please attach consent and information/debriefing sheets to all applications.

Date: 23 / 08 / 07

Tick one box: ☐ **STAFF project** ☐ **MASTERS project** ☐ **PHD project**

☒ **CLINICAL PSYCHOLOGY PROJECT** ☐ **UNDERGRADUATE PROJECT**

☐ **CLASS DEMONSTRATION**

What is the broad research area? ☐ **Language, Learning, & Development** ☐ **Perception, Attention Motor**

Clinical & Health ☒ **Other (please specify)** ☐

Who is the funder of the research? None

Title of project: The Development of a Brief Aspirations and Concerns in Life Inventory and its Relationship to Alcohol Use and Emotional Regulation.

Name **and email address(es)** of all researcher(s): Dr. Lee Hogan (pspa24@bangor.ac.uk)

Name **and email address** of supervisor (for student research): Professor Miles Cox (m.cox@bangor.ac.uk)

	YES	NO
Is your project in the area of Health and Social Care requiring sponsorship by the University of Wales, Bangor? If yes, please **complete your ethics application in COREC format** and **submit an NHS R&D form** alongside it. **You should still complete all sections to this form, but do not need to supply the additional information requested in boxes A or B of Part 1.**		X
Does your project require scrutiny from an outside body that has its own forms? If yes, please **complete your ethics application using the forms required by that outside body. You should still complete all sections to this form, but do not need to supply the additional information requested in boxes A or B of Part 1.**		X
If a student project, is this part of the supervisor's ongoing research that has been previously reviewed and approved? If yes, please **give the proposal number of the approved research project, and complete all sections of this form.**	Proposal nc	X

PART ONE: ETHICAL CONSIDERATIONS

		YES	NO	N/A
1	Will you describe the main experimental procedures to participants[1] in advance, so that they are informed about what to expect?	X		
2	Will you tell participants that their participation is voluntary?	X		
3	Will you obtain written consent for participation?	X		
4	If the research is observational, will you ask participants for their consent to being observed?			X
5	Will you tell participants that they may withdraw from the research at any time and for any reason?	X		
6	With questionnaires, will you give participants the option of omitting questions they do not want to answer?	X		
7	Will you tell participants that their data will be treated with full confidentiality and that, if published, it will not be identifiable as theirs?	X		
8	Will you debrief participants at the end of their participation (i.e. give them a brief explanation of the study)?	X		

If you have ticked **No** to any of Q1-8, but have **ticked box A** overleaf, please give an explanation on a separate sheet. [Note: N/A = not applicable]

[1] In questions 1-9, if participants are children, please consider the information that you will supply to the legal guardian in each case.

		YES	NO	N/A
9	Will your project involve deliberately misleading participants in any way?		X	
10	Is there any realistic risk of any participants experiencing either physical or psychological distress or discomfort? If **Yes,** give details on a separate sheet and state what you will tell them to do if they should experience any problems (e.g., who they can contact for help)		X	

If you have ticked **Yes** to 9 or 10 you should normally **tick box B** overleaf; if not, please give a full explanation on a separate sheet.

11	Does your project involve work with animals? If yes, please **tick box B** overleaf.			X	
12	Does your project involve payment of participants? If yes, please **tick box B** overleaf.			X	
13	Do participants fall into any of the following special groups? If they do, please refer to BPS guidelines, and **tick box B** overleaf. **Note that you may also need to obtain satisfactory CRB clearance.**	**Children (under 18 years of age)** N.B. You must ensure that you have made adequate provision for child protection issues in your protocol		X	
		People with learning or communication difficulties N.B. You must ensure that you have provided adequate provision to manage distress		X	
		Patients N.B. You must ensure that you have provided adequate provision to manage distress.		X	
		People in custody		X	
		People engaged in illegal activities (e.g. drug-taking)		X	
		Participants recruited from the Neurology Patient Panel		X	
		Physically vulnerable adults N.B. You must ensure that there is an appropriately CPR trained member of staff on hand at all times during testing.		X	

There is an obligation on the lead researcher to bring to the attention of the Departmental Ethics Committee any ethical implications not clearly covered by the above checklist.

PLEASE TICK **EITHER** BOX A **OR** BOX B OVERLEAF AND **PROVIDE THE DETAILS REQUIRED** IN SUPPORT OF YOUR APPLICATION.

	Please tick
A. I consider that this project has **no** significant ethical implications to be brought before the Departmental Ethics Committee.	X

Give a brief description of participants and procedure, including information on (1) hypotheses, (2) participants & recruitment, (3) research methodology, and (4) Estimated start date and duration of the study. Please attach consent and debrief forms.

Research Question

The proposed study has three aims. *First*, it aims to develop a brief tool that can estimate the degree of adaptive motivation in a person's goal pursuits, as typically measured by the Personal Concerns Inventory (PCI; Cox & Klinger 1999). *Second*, it aims to clarify the relationship between motivational structure, emotional regulation, drinking motives, alcohol use, and drinking problems. It is hypothesized that lower adaptive motivational structure will predict greater difficulties with emotional regulation, increased coping motives for drinking, excessive alcohol consumption, and more alcohol-related problems. *Finally*, the study will explore the reliability of the newly established measure for measuring motivational structure.

Participant Recruitment

Participants will be recruited from the student participation panel at the University of Wales, Bangor. Recruitment will be restricted to those students who consume alcohol on a regular basis (i.e., at least weekly). It is anticipated that this recruitment procedure will include a range of light, moderate, and heavy drinkers.

Design and Procedures

The proposed study is a repeated measures between-participants design. It has two time points.

Participants will be tested in groups of up to eight participants. Each cohort of participants will be randomised into one of three groups (n = 100 per group; total n = 300). All participants irrespective of group allocation will receive the following questionnaires:

motives for drinking, difficulties in emotion regulation, positive and negative affect scales, drinking problems, and alcohol consumption. Each group will receive the following additional questionnaires: Group 1 participants will receive the BACLI questionnaire; Group 2 participants will receive the PCI questionnaire; Group 3 participants will receive the BACLI and PCI questionnaires. This group design is necessary to prevent the possible cross-influence of the BACLI questionnaire on the PCI.

Participants will be contacted after six weeks and re-administered all the measures issued at baseline. See Appendices for a copy of all measures, consent and debrief forms

The minimum number of participants recruited into this study is determined according to the two main statistical procedures proposed: (a) factor analysis and (b) regression analysis. A number of heuristics are commonly proposed to establish the required sample size for factor analysis (e.g., sample size to variable ratio, sample size to factor ratio). MacCallum, Widaman, Zhang, and Hong (1999) suggested that most of these heuristics lack validity and need to be replaced with established guidelines for estimating the necessary sample size for factor analysis. In the proposed factor analysis there are relatively few variables (e.g., a maximum of seven variables) and the relatively few factors (i.e., previous research has typically generated two factor solutions of the PCI), therefore, heuristics based on these ratios have less relevance to the proposed analysis.

Many researchers have suggested sample sizes of $n > 100$ are more desirable and that the participant to variable ratio should be at least 2:1 (Kline, 1994). Comrey and Lee (1992) gave the following guidelines: $n = 50$ (very poor); $n = 100$ (poor); $n = 200$ (fair); $n = 300$ (good); $n = 500$ (very good); and $n = 1000+$ (excellent). Therefore, the proposed study will recruit the number of participants to satisfy Comrey and Lee's criterion of "fair" to "good" (i.e., $n = 200$ for the BACLI and PCI questionnaires and $n = 300$ for all other baseline questionnaires).

The sample size to satisfy the factor analysis criterion will be far greater than the one necessary to satisfy the regression analysis. With an attrition rate of 20% and a medium effect size of $f = .15$, to achieve statistical power of .80, and $p = .01$ while considering the number of independent variables ($k^b = 5$), 158 participants will be necessary at baseline (Cohen, 1992).

The baseline data will establish whether the BACLI can adequately estimate the degree of

adaptive motivation in a person's goal pursuits (as typically measured by the PCI; Cox & Klinger, 1999). Adaptive motivation will be assessed from (a) a priori generated formula and (b) factor analysis. Using Group 3 only, comparisons of the correlations between BACLI-generated adaptive motivation and PCI-generated adaptive motivation, and other baseline measures can be made. Correlations with baseline measures and adaptive motivation will also be compared between Group 1 (BACLI-generated adaptive motivation) and Group 2 (PCI-generated adaptive motivation). To establish whether the cross-influence of the BACLI on the PCI occurred, a comparison of correlations will be made between the PCI-generated adaptive motivation in Groups 2 and Group 3, with other baseline measures.

The re-test of participants has two aims. First, it aims to explore the reliability of the BACLI for measuring motivational structure (i.e., test-retest stability). Second it aims to explore the predictive ability of motivational structure on emotional regulation, alcohol consumption, and drinking problems. It is hypothesized that lower adaptive motivational structure will predict greater difficulties with emotional regulation, increased coping motives for drinking, excessive alcohol consumption, and more alcohol-related problems.

October 2007 - Recruit participants into the study (n = 300) (e.g., 8 participants per session and 6 x 1 hour sessions per day for three days per week = 2 weeks).

November / December 2007 - Retest participants (n = 300) for stage three part of the study (e.g., 8 participants per session and 6 x 1 hour sessions per day for three days per week = 2 weeks).

Please tick

B. I consider that this project **may** have ethical implications that should be brought before the Departmental Ethics Committee, and/or it will be carried out with children or other vulnerable populations.	

Please provide all the further information listed below in a separate attachment.

1. Title of project
2. The potential value of addressing this issue
3. Brief background to the study
4. The hypotheses
5. Participants: recruitment methods, age, gender, exclusion/inclusion criteria
6. Research design
7. Procedures employed
8. Measures employed
9. Qualifications of the investigators to use the measures (Where working with children or vulnerable adults, please include information on investigators' CRB disclosures here)
10. Venue for investigation
11. Estimated start date and duration of the study (N.B. If you know that the research is likely to continue for more than three years, please indicate this here).
12. Data analysis
13. Potential offence/distress to participants
14. Procedures to ensure confidentiality and data protection
15. *How consent is to be obtained (see BPS Guidelines and ensure consent forms are expressed bilingually where appropriate. The University has its own Welsh translations facilities on extension 2036)
16. Information for participants (provide actual consent forms and information sheets)
17. Approval of relevant professionals (e.g., GPs, Consultants, Teachers, parents etc.)
18. Payment to: participants, investigators, departments/institutions
19. Equipment required and its availability
20. What arrangements are you making to give feedback to participants? The responsibility is yours to provide it, not participants' to request it.
21. Finally, check your proposal conforms to BPS Guidelines on Ethical Standards in research and sign the declaration. If you have any doubts about this, please outline them.

PLEASE COMPLETE PART TWO OVERLEAF.

PART TWO: RISK ASSESSMENT

If you tick "yes" to any of the questions in the table below, **please outline on a separate sheet the probability and significance of the risks involved and the means proposed for the management of those risks.** Where relevant, please also describe the procedures to be followed in the event of an adverse event or emergency.

			YES	NO	N/A
1	Is there significant potential risk to **participants** in any of the following ways?	Potential adverse effects		X	
		Potential distress		X	
2	Is there significant potential risk to **investigator(s)** in any of the following ways?	Potential risk of violence or other harm to the investigator(s) (e.g., through work with particular populations or through context of research).		X	
		Potential risk of allegations being made against the investigator(s). (e.g., through work with vulnerable populations or context of research).		X	
3	Is there significant potential risk to the **institution** in any way? (e.g., controversiality or potential for misuse of research findings.)			X	
4	Is there significant potential risk to other members of staff or students at the institution? (e.g., reception or other staff required to deal with violent or vulnerable populations.)			X	

The following questions address specific situations that can carry risks to the investigators and/or participants. If you tick "yes" to any of the questions below, please refer to the guidance given (see *Ethics Guidance and Procedures*) on procedures for dealing with these risks and, **on a separate sheet, outline how these risks will be dealt with in your project.**

5	Does the research involve the investigator(s) working under any of the following conditions: alone; away from the School; after-hours; or on weekends?		X	
6	Does the experimental procedure involve touching participants?		X	
7	Does the research involve disabled participants or children visiting the School?		X	

There is an obligation on the lead researcher to bring to the attention of the Departmental Ethics Committee any risk implications of the research not clearly covered by the above checklist.

PLEASE COMPLETE PART THREE OVERLEAF.

PART THREE: RESEARCH INSURANCE

The purpose of this section is to decide whether the University requires additional insurance cover for a research project. In the case of student research, this section should be completed by the supervisor

		YES	NO	N/A
1	Is the research to be conducted in the UK?	X		
2	Is the research based **solely** upon the following methodologies? ☐ Psychological activity ☐ Questionnaires ☐ Measurements of physiological processes ☐ Venepuncture ☐ Collections of body secretions by non-invasive methods ☐ The administration by mouth of foods or nutrients or variation of diet other than the administration of drugs or other food supplements	X		

If you have ticked "Yes" to the questions above, then insurance cover is automatic for your research and there is no need to do anything further.

If the answer to either of the above questions is "No," we will supply you with a further questionnaire to complete and return to the Insurance Officer; in these cases **the research should not commence until it has been established that appropriate insurance cover is in place.**

PLEASE SIGN AND DATE THE DECLARATIONS ON THE FINAL PAGE OF THIS FORM OVERLEAF.

Declaration of ethical compliance

This research project will be carried out in accordance with the guidelines laid down by the British Psychological Society and the procedures determined by the School of Psychology at Bangor. I understand that I am responsible for the ethical conduct of the research. I confirm that I am aware of the requirements of the Data Protection Act and the University's Data Protection Handbook, and that this research will comply with them.

Declaration of risk assessment

The potential risks to the investigator(s) for this research project have been fully reviewed and discussed. As an investigator, I understand that I am responsible for managing my safety and that of participants throughout this research. I will immediately report any adverse events that occur as a consequence of this research.

Declaration of conflicts of interest

To my knowledge, there is no conflict of interest on my part in carrying out this research.

DECLARATION OF DATA OWNERSHIP AND IPR (FOR STUDENTS)

I understand that any data produced through this project are owned by the University and must be made available to my supervisor on request or at the end of the project. I confirm that I am aware of the University's Intellectual Property Policy and that this research will comply with it.

(Chief investigator/supervisor)

Signed:

Date:

(Associate investigator(s)/student(s)

Signed:

Date:

For School Use Only

Reviewer 1 ....

Approved.....Date.....

(name) (signature)

Reviewer 2 ....

Approved.....Date.....

(name) (signature)

Proposal No. .....

Date: Tue, 18 Sep 2007 15:52:37 +0100 [18/09/07 15:52:37 BST]
From: Everil McQuarrie <e.mcquarrie@bangor.ac.uk>
To: "W. Miles Cox" <m.cox@bangor.ac.uk>, "pspa24@bangor.ac.uk" <pspa24@bangor.ac.uk>
Subject: Ethics proposal 994
Dear Colleagues

The Development of a brief Aspirations and Concerns of Life inventory and its relationship to Alcohol use and Emotional regulation Proposal 994

Your research proposal referred to above has been considered by the School of Psychology Ethics Review Committee and they are satisfied that the research proposed accords with the relevant ethical guidelines, subject to you submitting Welsh translations of your information/consent and debrief forms to me (the Translation Unit is contactable on 382038/translation@bangor.ac.uk).

Data collection should not commence until you have submitted the Welsh translations.

If you wish to make any modifications to the research project, you must speak to your supervisor about it. If your supervisor thinks that the modifications are at all important, you must inform the committee in writing before proceeding. Please also inform the committee as soon as possible if participants experience any unanticipated harm as a result of taking part in
your research.

Good luck with your research.
Everil
--
Everil McQuarrie
Finance and Research Administrator
Bangor University
School of Psychology,
Room No.106,The Brigantia Building,
Penrallt Road,Bangor,LL57 2AS
Tel 01248 382431

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Reflections of the Research Process

I cannot truthfully say that the research process for this thesis has been painless, and I would argue that I typically enjoy research! In my experience, research is rarely a simple task of generating a clear research question, employing a neat design, with smooth implementation, clean analysis, and a straightforward write-up. In part, this is what draws me to research: the flexibility in thinking that is necessary to design an effective strategy, to predict (and overcome) potential challenges, and to solve the, often, puzzling outcomes. My position in respect to research has, thankfully, not changed. For me, it was the pressures and restrictions of the clinical programme (e.g., conducting research alongside clinical work within tight time constraints) that lead to my experience of "pain". This observation is not a direct criticism of the clinical programme at Bangor per se: it is more an observation of the pressures of clinical training in general.

I have chosen to use, perhaps unconventionally, a SWOT analysis technique to reflect on the research process. *SWOT* (an acronym for Strengths, Weaknesses, Opportunities, and Threats) is an approach often used to prospectively consider a problem or task. I will be using this technique retrospectively to organise my thoughts and reflections of the research process. First, I will reflect on the relative strengths and my positive experiences of the process; second, I will consider the relative weaknesses of the task and reflect on the dilemmas it posed to me; third I will reflect on the outcomes of what I considered to be the opportunities of undertaking the project; fourth, I will outline the threats to the process and reflect on its impact to me. Finally, I draw together my conclusions based on the SWOT analysis.

Strengths

From the beginning of my clinical training I looked forward to the research component. As mentioned above, I had previously enjoyed the process of designing and

conducting research. I even considered it to be a *relative* strength for me, although I certainly did/do not consider myself an expert. I felt I had plenty of interesting, unresolved questions from my previous research training, where I had researched, studied, and worked in the area of substance abuse. I feel this area of clinical psychology is often marginalised in terms of effective therapy, despite the masses of theoretical psychological research in the area. My clinical training had only furthered my curiosity of the possibility of an integrative approach to treatment for substance misuse therapy. My third year placement, which was based in an adolescent inpatient unit for self-harm and suicidal behaviour where DBT is used as the principle treatment approach, was chosen primarily because of the emotion regulation approach. My review paper, in particular, drew on these ideas of emotion regulation.

I have always been willing to take a chance in terms of research. I think it important that research is pushed further than the relatively "safe" randomised controlled trials. In the past my vastly more experienced supervisor has moderated my more "whacky" ideas. This willingness to take a chance (i.e., attempting to develop a novel instrument, or proposing to integrate diverse theoretical approaches) added a sense of enjoyment and satisfaction to the process. Of course, a high degree of optimism and an avid interest in research does not necessarily guarantee a successful outcome—taking a chance can sometimes backfire and at times during the process I certainly began to feel this so-called strength might be detrimental to a successful outcome.

Weaknesses

The relative strength that I derived from my previous research experience also came at a cost. My optimism towards research was tempered by a realism derived from my research experience with a clinical population. Although undertaking a clinical psychology programme, I was steered away from sampling a clinical population and towards sampling a

student population. In some respects my previous experience remained a strength: it was extremely unlikely that I would be able to answer the research question I had set myself within the time constraints involved with a clinical population (e.g., obtaining ethical approval, recruiting enough participants, and retaining them for the follow-up testing). However, conducting applied clinical research was one of my motivations for undertaking clinical psychology training. In hindsight, I regret not using this opportunity to use a clinical sample, albeit in a modified experimental design.

In some ways the pressures of undertaking this research within the confines of the clinical psychology programme placed a number of restrictions on this project. First, I faced a dilemma of either applying myself fully to my research work or ensuring I had a positive clinical placement. The start of my clinical placement coincided with the start of my recruitment phase. I found it difficult to fully engage in my clinical placement during the initial stages, which I attributed, in part, to the lack of time spent on the placement—the placement setting (i.e., an adolescent inpatient unit) might have been a contributing factor. I used supervision time to reflect on, and to resolve, this very issue, although I did spend more of my research time at the unit than initially allocated and caught-up with research work at other times. A second restriction was the lack of time to reflect on the ongoing progress of the research. I felt like action was more pressing than reflection, although I certainly feel more reflection would have helped the process (e.g., ensuring the process of the research was more responsive to challenges and less reactive) and improved the learning outcomes.

Opportunities

I approached this research project with the view that it was an opportunity to further develop my research skills and to expand on my clinical knowledge base. I found the research teaching extremely useful and it was tailored to the needs of the trainees and their

projects. The process of presenting and discussing our research ideas to members of the programme team and other members of the cohort was helpful. I found it enabled me to be more objective about my research because it enhanced my understanding of the research team's objectives for the research. I felt the programme gave me the freedom and opportunity to tackle almost any issue relevant to clinical psychology (e.g., integrating theories) and this was extremely satisfying.

Threats

A number of issues marginally threatened the research process. As mentioned above, the limited timeframe and competing demands (e.g., clinical work and family pressures) all increased the pressure on the process. My optimism in terms of recruitment and my ambitiousness in terms of the research objectives also added to the pressure. For example, I anticipated a smooth recruitment procedure by using the school of psychology student participation. I believed it would give me access to large numbers of students and so increase the power of the study: this was not the case.

There were two related issues that I failed to take into account when deciding to use the school of psychology student participation panel. First, there were competing demands for this resource from other (School of Psychology) researchers—I had to plead my case with the research panel officer that my study deserved the large number of students that I had outlined. Second, I also had to secure a reduced rate in terms of payment to the school of psychology for the use of this resource: each student received £4 of printer credits per hour of study—according to my estimations costs at this rate would be in excess of £1200—but thankfully the school agreed to a reduced rate of £1 to the clinical psychology programme.

An additional problem using the student participation panel was the apathy of students to sign-up for experiments, despite this being part of their course requirement. This lack of

sign-ups increased my planned recruitment and retest timescale by three months and from 12 testing days to 30. This was a particularly frustrating experience, especially given all the careful planning!

There were also two aspects regarding the write-up of the project that were challenging. First, I was somewhat ambitious with the objectives of my empirical study: I set out to develop a new questionnaire and to examine an independent relationship between emotion regulation and alcohol consumption and problems. In terms of the write-up, focusing on a single objective would have been more helpful. In practice researchers tend to have multiple research objectives, which increases the probability of interesting findings! The transparency of the DClinPsy thesis (i.e., stating clear hypotheses in the ethics proposal and including this as a section in the thesis) ensured that research protocols were adhered to. I found it a tight squeeze to adequately demonstrate that I tested *all* my priori hypotheses. The second challenge for me was the review paper write-up. I underestimated the level and depth of reading that was necessary for this review paper, possibly because of the theoretical nature of the review; nevertheless, I am satisfied that the hard work was worth it.

Conclusions

The research process was a challenge. I faced a number of difficulties, none of which greatly threatened the project, but in combination proved challenging. I have a slight regret that I did not include a clinical sample—even if I did so in only a limited way. I remain optimistic in my view of research and I hope to continue to be an active researcher in the future. Through this process I have learned that balancing the competing demands of clinical and research work is a great challenge. On reflection, I believe that it is important to ensure that there is adequate time to reflect on the research process even after all the planning and decision-making is complete; this would allow a more responsive approach to the inevitable

challenges that research brings. This is perhaps an important lesson in terms of my future ambition to be an active clinical researcher and practitioner.

Journal Submission Criteria

CLINICAL PSYCHOLOGY REVIEW

Guide for Authors

SUBMISSION REQUIREMENTS: Authors should submit their articles electronically via the Elsevier Editorial System (EES) page of this journal (http://ees.elsevier.com/cpr). The system automatically converts source files to a single Adobe Acrobat PDF version of the article, which is used in the peer-review process. Please note that even though manuscript source files are converted to PDF at submission for the review process, these source files are needed for further processing after acceptance. All correspondence, including notification of the Editor's decision and requests for revision, takes place by e-mail and via the Author's homepage, removing the need for a hard-copy paper trail. Questions about the appropriateness of a manuscript should be directed (prior to submission) to the Editorial Office, details at URL above. Papers should not exceed 50 pages (including references).

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, without the written consent of the Publisher.

FORMAT: We accept most wordprocessing formats, but Word, WordPerfect or LaTeX are preferred. Always keep a backup copy of the electronic file for reference and safety. Save your files using the default extension of the program used.

Please provide the following data on the title page (in the order given).

Title. Concise and informative. Titles are often used in information-retrieval systems. Avoid abbreviations and formulae where possible.

Author names and affiliations. Where the family name may be ambiguous (e.g., a double name), please indicate this clearly. Present the authors' affiliation addresses (where the

actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name, and, if available, the e-mail address of each author.

Corresponding author. Clearly indicate who is willing to handle correspondence at all stages of refereeing and publication, also post-publication. Ensure that telephone and fax numbers (with country and area code) are provided in addition to the e-mail address and the complete postal address.

Present/permanent address. If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

Abstract. A concise and factual abstract is required (not exceeding 200 words). This should be typed on a separate page following the title page. The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list.

STYLE AND REFERENCES: Manuscripts should be carefully prepared using the Publication Manual of the American Psychological Association, 5th ed., 1994, for style. The reference section must be double spaced, and all works cited must be listed. Please note that journal names are not to be abbreviated.

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For Books: Hersen, M. (Ed.). (2005). Comprehensive handbook of behavioral assessment (2 Volumes). New York: Academic Press (Elsevier Scientific).

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Emotion Regulation: A Theoretical Account of Alcohol's Role in Regulating Emotion

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Abstract

With the advent of the so-called "third wave" of emotion-focused, psychological therapies and the increasing research interest of emotion regulation, this review considers the role of alcohol to regulate emotions. First, this paper outlines affect-based accounts of alcohol use. It describes in detail Cox and Klinger's (1988, 1990, 2004) motivational model of alcohol use: a comprehensive, biopsychosocial model with core affect-based components. Cooper's (1994) account of drinking motives is directly compared and contrasted to Cox and Klinger's model. The section concludes that Cox and Klinger offer a more thorough understanding than Cooper's account of drinking motives. Second, the paper describes Gross and Thompson's (2007) theoretical model of emotion and emotion regulation strategies. Gross and Thompson's model of emotional regulation strategies provided a useful framework for understanding the role that alcohol plays in affect regulation. In the final section a tentative integration of this model and with Cox and Klinger's model suggested that alcohol might be used as a means of *enhancing* some but not all emotion regulation strategies (i.e., situation selection, situation modification, attentional deployment, and response modulation). This review of emotion regulation in the area of alcohol use has numerous implications for the current understanding and treatment of alcohol (and possibly other substance abuse) disorders.

KEY WORDS: Alcohol, Motivation, Drinking motives, Emotion regulation, Third wave

Emotion Regulation: A Theoretical Account of Alcohol's Role in Regulating Emotion

People commonly report that drinking alcohol helps them to unwind after a hard day, that it relaxes them, that it helps them to socialise more easily, or that it enhances their mood. On the face of it, it seems clear that alcohol helps people to regulate their emotional states. This paper considers people's use of alcohol to regulate their affect. It is proposed that emotion regulation is a central motivating factor in alcohol use, although there is not yet any empirical evidence to directly support this claim. First, this paper considers the growing interest in emotion regulation in clinical psychology. Second, it reviews models of affect-based accounts of alcohol use. Third, it defines emotion and emotion regulation before finally proposing how emotion regulation might align to an affect-based account of alcohol use.

Emotion is central to human functioning (and its dysfunction). In the last decade published research findings of emotion and emotion regulation has increased dramatically (Gross, 2007). Despite this growing interest, the concept of emotion is clearly not a new phenomenon: the importance of emotional states for survival (e.g., to motivate action, to communicate needs to others) has been documented throughout history by the greatest of philosophers and scientists (e.g., Aristotle, Descartes, Darwin). Although emotional states can be adaptive, their presence is not always functional and they can underpin a variety of psychological disorders (Menin & Farach, 2007). It is perhaps the complexity of measuring and defining a multifaceted construct such as emotion that has hampered the advancement of scientific inquiry on this topic.

Divergent lines of research in the area of emotion and its related concepts (e.g., biological, cognitive, developmental) have greatly increased the understanding of this construct; nevertheless, inconsistencies in terminology and definitions have also impeded the

research (Gross, 2007; Rottenberg & Gross; 2007). Gross and Thompson (2007) defined *emotion* as a subordinate category of affect, as are stress, mood, and other motivational impulses (e.g., aggression, eating, pain, sexual activity). Although these affective processes overlap, they can be distinguished in several ways: unlike stress, emotions can be both positive and negative in valence; unlike moods, emotions are quicker in onset and typically shorter in duration; and unlike other motivational impulses, emotions are more flexible and can be attached to a greater number of "targets". The core features of emotion are best described as an internal or external event that, when relevant to an individual's goals, trigger multifaceted cognitive, behavioural, and physiological responses that have the capacity to automatically override awareness (Gross, 2007).

The growing interest in emotion and its related concepts has coincided with the advent of the, so-called, "third wave" psychological therapies (Hayes, 2004), of which emotion regulation is a core feature. Menin and Farach (2007) concluded that emotion regulation is a central component underlying much of adult psychopathology. It has been hotly debated whether the third wave therapies (i.e., mindfulness-based and acceptance-based approaches) actually conceptualise emotion and its related concepts in theoretically different ways to the longer-standing approaches (e.g., cognitive behavioural therapy; CBT) (Leahy, 2007); nevertheless, Menin and Farach outlined a number of treatments that have been enhanced with an emotion-focused approach for a variety of disorders (e.g., anxiety disorders, depression, personality disorders, PTSD). The evidence base clearly supports CBT as an approach for many psychological disorders (Leahy, 2007), although mindfulness- and acceptance-based approaches offer an alternative treatment for the more complex, chronic disorders (e.g., borderline personality disorder, PTSD, self-harm), for which other treatments are less effective (Menin & Farach, 2007).

Biopsychosocial approaches perhaps offer the most comprehensive account of the complex interplay of factors leading to alcohol use and abuse. Affect regulation is a critical determinant of the use of alcohol, and probably of the abuse of other illicit substances, (Cooper, Frone, Russell, & Muda, 1995; Cox & Klinger, 1988, 1990, 2004, Hussong, Hicks, Levy, & Curran, 2001). Despite the comprehensive theoretical accounts of alcohol misuse, treatment outcomes have only limited success in terms of abstinence rates: with more than 50 percent of patients return to drinking within three-months (Whitworth et al., 1996). A further complicating factor is the high co-morbidity rates: for example, alcohol abuse is co-morbid with 19-28% of people presenting with social phobia (Carrigan & Randall, 2003), and in 49% of those presenting with borderline personality disorder (Trull, Sher, Minks-Brown, Durbin, & Burr, 2000).

In the first study to directly examine the link between emotion regulation and alcohol misuse, Fox and Sinha (2008) examined the emotion regulation difficulties of 50 treatment-seeking alcohol abusers several days after admission to an inpatient unit and again prior to their discharge, approximately five weeks later. In comparison to 62 social drinkers, the alcohol abusers reported greater overall difficulty regulating their emotions, with particular difficulties in emotional awareness and impulse control. Although improvements in emotion regulation difficulties improved following abstinence, the alcohol abusers' scores on emotion regulation difficulties remained higher than the social drinkers. This study was limited in that it was impossible to evaluate whether emotion regulation difficulties were a direct cause of alcohol abuse or as a consequence of it. It was also possible that the improvements shown by the alcohol abusers might have continued following further abstinence. A further methodological limitation was the omission of a retest for the social drinkers, which makes it impossible to rule out any practice effects for the experimental group.

In sum, clinical psychology has demonstrated a growing interest in emotion regulation, particularly with the advent of the so-called "third wave" psychological therapies. These therapies appear to be most beneficial in the treatment of many of the harder-to-treat, emotional-based psychological disorders (e.g., borderline personality disorder). As highlighted above, alcohol abuse (and the abuse of illicit substances in general) tends to be resistant to many traditional treatment approaches, with high relapse rates. Although direct research of emotion regulation and alcohol use is limited, research on alcohol use as a means of affect regulation has a longstanding history. The next section will consider the concept of affect and alcohol use.

Affect and Alcohol Use

Within the field of alcohol research, the relationship between affect and alcohol use is well established (Cooper, et al., 1995; Cox & Klinger, 1988, 1990, 2004). Theoretical approaches that suggested alcohol served as a means of regulating negative affective states (e.g., tension reduction) received considerable interest in the latter half of the 20th century (Greeley & Oei, 1999). The tension reduction hypothesis (Conger, 1956) stated that alcohol served a basic drive function in that it reduced negative states such as anxiety. However, numerous studies employing a wide range of methodologies, with human and animal subjects, were prone to mixed results (i.e., in some cases alcohol decreased stress, in others it made no difference and in yet others it actually increased stress) (See Greely & Oei for a review). Greely and Oei, nevertheless, concluded that there was a general consensus that for some individuals (and animals), at certain doses and in some contexts, alcohol had tension-reducing effects.

Some researchers considered the tension reduction hypothesis as too broad and argued for more emphasis on identifying the conditions in which alcohol provided a stress

dampening effect (Powers & Kutash, 1985). In this vein, Levenson, Sher, Grossman, Newman, and Newlin (1980) proposed the stress-response-dampening (SRD) hypothesis. This model proposed that (a) alcohol consumption should reduce stress in *certain* situations and (b) that *some* stressful situations should motivate alcohol consumption. Sher (1987) highlighted the importance of several individual differences (e.g., family history, personality traits) that can lead to people being more sensitive to alcohol's SRD effects. However, despite a growing understanding of the conditions in which SRD is more likely and the use of increasingly sophisticated methodological means of assessing it (e.g., see Sher, Bartholow, Peuser, Erikson, & Wood, 2007), the evidence supporting SRD effects remains relatively weak (Hussong et al., 2001).

Cox and Klinger's (1988, 1990, 2004) motivational model of alcohol use is a more comprehensive model than stress/tension reduction models. It accounts for the biological, psychological, and sociocultural/environmental influences on drinking behaviour. The model explains how multiple factors increase or decrease the motivation to drink, and the final decision to drink is based on the summation of the various sources of expected affective change from drinking. According to this perspective, drinking alcohol is a volitional act (although influenced by factors of which the person is unaware) that is influenced by rational and emotional processes.

The model describes how current expectations of affective change from drinking alcohol are influenced by the more distal, past experiences with drinking. Distal factors (i.e., previous biochemical reactions to alcohol, personality characteristics, sociocultural environments) interact with each other to either promote excessive drinking or to protect people from it. For example, it is now well-established that people vary in their biochemical reactions to alcohol because of their genetic makeup, with some particularly sensitive to alcohol's punishing effects (Li, 2000). Extensive research has failed to yield an "alcoholic

personality", but two broad constellations of personality characteristics can predate, or co-exist with, alcohol abuse (i.e., behavioural disinhibition and negative emotionality) (Cox, Yeates, Gilligan, & Hosier, 2002). Cultural differences, social networks and family norms are associated with a variety of accepted drinking patterns (Skog, 1991). Understandably, such past reinforcement from drinking, whether positive or negative, influences the current expectations of positive or negative consequences of drinking.

Current factors such as the physical setting or a person's current life situation are critical. For instance, some physical settings can either promote or deter drinking by both the availability of alcohol and by the expected changes in affect: some situations promote drinking (e.g., social events, in which alcohol is readily available and socially accepted) and other situations can deter it (e.g., taking examinations, in which alcohol is typically unavailable and socially undesirable). If a person is unable to derive emotional satisfaction through his or her other incentives, then he or she may consume alcohol as a means of increasing positive affect or reducing negative affect. Therefore, expected affective change from drinking occurs in the context of the emotional satisfaction derived from the person's current life situation.

People can be motivated to drink by the expectation that drinking alcohol will change their affect either directly (i.e., through the pharmacological effects) or indirectly (i.e., through the instrumental effect alcohol has on other life incentives). The direct pharmacological effects of drinking can either increase positive affect (e.g., by increasing a person's enthusiasm, disinhibition), or it can reduce negative affect (e.g., by helping to alleviate anxiety, blocking out worries). However, such chemical effects are only short-lived and of limited benefit. The indirect, instrumental effects of drinking can also either increase positive affect (e.g., by enhancing positive incentives, such as facilitating social networks or

gaining approval from peers) or reduce negative affect (e.g., by reducing negative incentives, such as ensuring a business deal is not lost by entertaining a business associate).

These direct and indirect expectations of affective change from drinking alcohol, or a person's motives for drinking, are viewed as the final common pathway and the most proximal determinant of alcohol use (Cooper, 1994; Cox & Klinger, 1988, 1990, 2004). According to Cooper, who tested Cox and Klinger's theoretical model, drinking motives are derived from positive and negative reinforcement and are based on internal or external motivation. Crossing these two dimensions, Cooper described four kinds of drinking motives: enhancement motives (positive reinforcement – internal motivation); coping motives (negative reinforcement – internal motivation); social motives (positive reinforcement – external motivation); and conformity motives (negative reinforcement – external motivation).

Research on drinking motives has established some consistent findings in relation to drinking behaviour. For instance, drinking for negative-reinforcement reasons (i.e., coping and conformity) predicted alcohol-related problems, whereas drinking for positive reinforcement reasons (i.e., enhancement and social motives) predicted heavy alcohol consumption (Stewart, Loughlin, & Rhyno, 2001). Consistent relationships between internal drinking motives (i.e., coping and enhancement) and personality factors have also been reported. For example, novelty seeking has been significantly correlated with drinking for enhancement motives, but not with coping motives (Cooper, et al., 1995). However, levels of trait anxiety are significant predictors of coping motives, but unrelated to enhancement motives (Stewart & Zeitlin, 1995). Stewart and Devine (2000) also found that internal drinking motives (coping and enhancement), but not external motives (conformity and social) were related to participants' personality characteristics. They showed that coping-motivated drinkers were anxious, depressed, and vulnerable, whereas enhancement-motivated drinkers

were excitement seekers—the former, but not the latter, relationship was replicated by Stewart et al. (2001).

Cooper's (1994) model of drinking motives is more limited than Cox and Klinger's (1988, 1990, 2004) account. According to Cox and Klinger, drinking to increase positive affect through the indirect, instrumental effects of drinking is broader than Cooper's social motives for drinking; and drinking to decrease negative affect through the indirect, instrumental effects of drinking is also broader than Cooper's conformity motives. In addition, Cooper's social motives for drinking implies that drinking for social reasons is motivated exclusively by externally motivated positive reinforcement, whereas according to Cox and Klinger's model social drinking might be viewed as related to multiple incentives (e.g., the direct pharmacological effects of reducing anxiety to socialise and the indirect instrumental effects of enhancing social networks). In a similar fashion, drinking to conform might also involve both pharmacological and instrumental effects (e.g., drinking to become more disinhibited and drinking in order to fit in with peers).

In addition to viewing motives for *strengthening* the likelihood of drinking, Cox and Klinger's (1988, 1990, 2004) model also postulated how these processes can be understood in terms of *weakening* the motivation to drink. The direct pharmacological effects can reduce the likelihood of drinking by (a) reducing positive incentives (e.g., lowering mood) and (b) by increasing negative incentives (e.g., adversely affecting health). The indirect instrumental effects can reduce the likelihood of drinking by (a) the belief that alcohol will interfere with other positive incentives (e.g., harming a close relationship) and (b) that it will exacerbate other negative incentives (e.g., the expectation that alcohol will increase the harm of an existing disease such as diabetes).

Table 1 displays Cox and Klinger's (1988, 1990, 2004) model of expectations on positive and negative incentives crossed with the alcohol's direct pharmacological effects and

its indirect instrumental effects. It further subdivides effects on positive and negative incentives that increase the likelihood of drinking and those that decrease the likelihood. In addition, Cooper's (1994) drinking motives are mapped onto this model.

Insert Table 1 about here

Emotion Regulation

As highlighted above, it is important that emotion and its related constructs (i.e., emotion regulation) be clearly defined. According to Gross and Thompson (2007) *emotion* is a subordinate category of affect, as are stress, mood, and other motivational impulses and its core features can be an internal or external event that, when relevant to an individual's goals, triggers multifaceted cognitive, behavioural, and physiological responses that have the capacity to automatically override awareness. It is crucial, therefore, to clearly explicate how one regulates such an experience.

It is possible to view emotion regulation in terms of either (a) how emotions regulate other behaviours and thoughts or (b) how emotions are themselves regulated. It is this latter distinction that Gross and Thompson (2007) prefer: the process by which emotions are regulated by other factors. Rottenberg and Gross (2007) defined *emotion regulation* as the direct attempts that people make to alter their emotional experience (i.e., in terms of selecting the emotions to have, how they experience them, how they express them, or how long they endure them). It is also noteworthy that according to Rottenberg and Gross emotion regulation is just one form of affect regulation, along with coping, mood regulation, and psychological defence.

Gross and Thompson (2007) described a modal model of emotion onto which five emotion regulation strategies can be mapped. These strategies include: *situation selection* (i.e., proactively seeking situations that make desired (or undesired) emotions more (or less)

likely to occur); *situation modification* (i.e., altering situations in an attempt to facilitate desired emotions); *attentional deployment* (i.e., distracting attention away from undesired emotions); *cognitive change* (i.e., altering cognitive appraisals of an event); and *response modulation* (i.e., attempting to alter the physiological, experiential, or behavioural responding).

A Theoretical Account of Emotion Regulation and Alcohol Use

As discussed above, affective change is central to Cox and Klinger's (1988, 1990, 2004) motivational model of alcohol use. Although emotion regulation is just one subordinate category of affect, along with stress, mood and motivational impulses, alcohol use can be viewed as operating at all these levels within the motivational model. For example, it is possible that alcohol can be used to (a) directly regulate emotions; (b) as a coping mechanism for longstanding stress; (c) as a means of regulating longstanding low mood; or (d) as a means of managing motivational impulses such as pain. Of course, not all individuals will use alcohol under such conditions, and, as discussed above, the summation of expected affective change for each individual is the crucial factor—that is, how the benefits of drinking typically outweigh the negative consequences (even if only in the short-term).

According to the emotion regulation literature, a person's choice of emotion regulation strategy, and whether this is adaptive or maladaptive, will be dependent on situational, individual, and temporal factors (e.g., a strategy that is maladaptive under certain circumstances might be adaptive under others). It is also important to bear in mind, and as highlighted above, that along with alcohol's beneficial effects it has numerous negative effects, which can increase or decrease the likelihood of alcohol consumption. The interplay between the choice of emotion regulation strategy and the use of alcohol as means of regulation is complex. According to Gross and Thompson's (2007) modal model, emotions

can be regulated at five points in a given process. The first four strategies are antecedent-focused (i.e., they are regulatory processes that occur before emotion is experienced) and the last strategy is response-focused (i.e., a regulatory strategy employed in response to an emotional state). These five strategies will now be applied to people's use of alcohol and to Cox and Klinger's (1988, 1990, 2004) model in particular.

The first emotion regulation strategy described by Gross and Thompson (2007) is situation selection, which is associated with the most forward-planning strategy. This strategy is based on the presumption that people will seek out situations that either lessen the likelihood of undesirable emotions or increase desirable ones. According to Cox and Klinger's model situational factors are critical determinants in the decision to drink. It would hold, therefore, that in the anticipation of an emotionally difficult episode, or in an attempt to increase positive emotion, a person might seek a situation in which alcohol consumption is both socially acceptable and readily available. For example, in an attempt to reduce the negative affect accompanying a conversation regarding a recent bereavement, a person might seek out a situation where alcohol is available and socially accepted; similarly, in an attempt to increase positive affect, a person might choose to watch a sporting event in a bar drinking with friends.

Maladaptive situation selection is also evident in various forms of mood disorders. For example, Cambell-Sills and Barlow (2007) described how a person suffering with social phobia might not accept an invitation to a party to prevent feelings of embarrassment, or how a depressed individual might withdraw from social contact in order regulate difficult emotions. Ultimately, however, maladaptive situation selection maintains pathological fear, reduces positive experiences and quality of life (Cambell-Sills & Barlow, 2007).

The second emotion regulation strategy is situation modification. This type of strategy involves modifying an encountered situation to reduce or increase an unpleasant or

pleasant emotion, respectively. In many instances people use alcohol itself as the modifying factor. For example, a person who is worried about flying in an aeroplane might consume alcohol as a means of coping with his or her fear. Similarly, an individual might be motivated to drink to calm his or her nerves prior to meeting an important new person, or he or she might be motivated to drink to enhance a dull party. It is possible that the use of alcohol as a situation modification strategy can become a form of "safety behaviour", which is frequently found in anxiety disorders (Barlow, 1988). In the case of anxiety disorders, safety behaviours often give a sense of short-term emotional control without the full exposure to the feared stimuli—the expense of which is a failure to overcome the underlying fear/problem.

The third emotion regulation strategy is attentional deployment. Attentional deployment refers to regulating emotions by the degree of concentration or distraction that a person directs to the emotion-eliciting stimulus in order to influence it. Distraction refers to shifting attention away from the situation evoking the emotion-eliciting stimulus whereas concentration refers to focusing-in directly on the stimulus. The use of both strategies can be used in adaptive and maladaptive ways. For example, distraction from anxiety-provoking situations (e.g., mental exercises) in the short-term can be beneficial, but in the longer-term can develop into a form of safety behaviours (Butler, 1989). Concentration on an emotion-eliciting stimulus can be deemed maladaptive when in the form of rumination (Just & Alloy, 1997), but adaptive when approach in the form of a mindfulness technique (Orsillo, Roemer, Lerner, & Tull, 2004).

Alcohol consumption can have a direct impact on attentional deployment. Steele and Josephs (1990) in their attention-allocation model described the phenomenon of *alcohol myopia*, in which alcohol intoxication limits the focus of attention by restricting the range of cues that can be perceived and the ability to fully process them. These authors presented compelling evidence that when an individual is intoxicated, and is required to attend to a task,

alcohol myopia prevents the individual from attending to his or her worries. However, this finding is not present in either non-intoxicated individuals or in an intoxicated individual who is not engaged in a salient activity. Alcohol myopia could, therefore, be encapsulated as an emotion regulation strategy aligned to attentional deployment; however, it could also be incorporated into the fifth and final emotional regulation strategy described below (i.e., response modulation).

The fourth emotion regulation strategy is that of cognitive change. Gross and Thompson (2007) described how an individual might still be capable of avoiding an emotional response even after attending to an emotion-eliciting situation by cognitive reappraisal. This strategy of emotion regulation is perhaps the most sophisticated one (i.e., the conditions for an emotional response are set, but a cognitive reappraisal of the situation reduces the impact, duration, or expression of the emotion). Arguably, this cognitive change strategy is the least likely to be enhanced by alcohol use. As highlighted above (i.e., alcohol myopia), it is more probable that alcohol will lead to rumination and a narrowing of attention on more salient events than to reappraisal.

Discussing the results of many of their own studies, John and Gross (2007) described two cognitive change strategies: *reappraisal* of an emotion-eliciting situation or *suppression* of it (see *response modulation* below). Reappraisal is associated with more healthy adjustment, whereas suppression of emotion-eliciting situations is more frequently associated with unhealthy adjustment and depressive symptoms. Gross (1998) demonstrated that participants who were instructed to reappraise a disgusting film had decreased negative emotional experience, whereas those who received instructions to suppress emotion-expressive behaviour whilst emotionally aroused showed increases in sympathetic arousal.

The final strategy described by Gross and Thompson (2007) is response modulation, which refers to directly influencing the elements (i.e., physiological, experiential, or

behavioural) of the emotional response. In contrast to the strategies above, response modulation occurs in direct response to an emotional experience, rather than as an antecedent-focused response. Alcohol use is perhaps more commonly associated with this strategy than any other (see the tension-reduction hypothesis described above). Alcohol myopia (i.e., the restriction of an individual's perception and range of cues rendering him or her susceptible to focusing on just the salient factors), as described above, might be a crucial factor in response modulation. For example, past experiences of drinking might lead to the expectation that alcohol can act as a means of blocking out worries (i.e., drinking alcohol whilst playing a game of pool might be a response modulation strategy as a means of "unwinding" after a difficult day at work).

In sum, it is evident that many of the emotional regulation strategies described by Gross and Thompson (2007) can be "enhanced" through alcohol's direct, pharmacological effects and by its indirect, instrumental effects. An individual might choose a situation (i.e., *situation selection*), modify a situation (i.e., *situation modification*), or in response to an intense emotion (i.e., *response modulation*) consume alcohol with the expectation that it will enhance a positive emotional experience (e.g., of watching a sporting event, livening up a dull party) by increasing enthusiasm/disinhibition and by facilitating friendships; similarly alcohol might be consumed in the belief that alcohol will reduce a negative emotional experience (e.g., low mood associated with a bereavement, meeting someone new, blocking out worries) by its anxiolytic effects and as a means of demonstrating an ability to cope. Alcohol's effect on *attentional deployment* might operate through its direct pharmacological effects on attention (i.e., through alcohol myopia). It is possible that alcohol (either directly or indirectly) has no "enhancing" effect on the strategy of *cognitive reappraisal* of an emotional experience.

The research evidence regarding alcohol's SRD effects is relevant to these emotional regulation strategies. For example, it is important to acknowledge that specific emotional regulation strategies might be more appropriate in certain contexts for certain individuals, and this might be a result of previous learning experiences or individual differences. This paper suggests that alcohol is often used as a means of regulating emotions: in some instances this might be an adaptive strategy, whereas in others it is maladaptive. What remains clear is that the relationship between alcohol consumption and emotion regulation requires greater empirical scrutiny.

Conclusions

This paper examined the link between emotion regulation strategies and alcohol use. The paper first gave a detailed account of Cox and Klinger's (1988, 1990, 2004) motivational model of alcohol use and compared this with Cooper's (1994) influential model. It suggested that Cooper's conceptual model is more limited than that of Cox and Klinger's: for example, social drinking can be motivated by alcohol's direct pharmacological effects (i.e., increased enthusiasm and disinhibition) and by its indirect instrumental effects (i.e., strengthening social networks). Cox and Klinger's model also proposed that alcohol consumption is motivated by the summation of multiple incentives (some positive and some negative). A person is naturally motivated to reduce negative incentives and increase positive ones, which increases the complexity surrounding a person's motives for drinking (i.e., drinking alcohol might simultaneously serve both functions).

The paper also explored the relationship Gross and Thompson's (2007) emotion regulation strategies and people's alcohol use. Although there is little direct empirical evidence of emotion regulation and alcohol use, there is ample supporting evidence that alcohol is used to regulate affect. Gross and Thompson's model of emotional regulation

strategies provided a useful framework for understanding the role that alcohol plays in affect regulation. A tentative review of this model suggested that alcohol might be used as a means of *enhancing* some but not all emotion regulation strategies (i.e., situation selection, situation modification, attentional deployment, and response modulation). Alcohol might facilitate situation selection by the choice of situations in which alcohol is readily available and its use socially acceptable. Alcohol can serve as a means of modifying situations in which difficult emotions are anticipated. Alcohol can have a direct impact on attentional deployment. Finally, alcohol might be used as a means of responding to intense emotional states. The use of alcohol as a means of effectively altering cognitive appraisals of an event is perhaps the least likely strategy to be *enhanced* by alcohol use.

This review of emotion regulation in the area of alcohol use has numerous implications for the current understanding and treatment of alcohol (and possibly other substance abuse) disorders. Future research should prioritise the link between emotion regulation and alcohol use—Gross and Thompson's (2007) framework is a useful starting point. Treatments based on the third-wave, emotion-focused treatments (e.g., mindfulness, dialectical behaviour therapy, acceptance and commitment therapy) might further enhance treatment outcomes for those with alcohol-related problems.

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Table 1

Examples of expectations of alcohol's direct, pharmacological and indirect, instrumental effects on positive and negative incentives and its impact on the motivation to drink

	Direct Pharmacological Effects	Indirect Instrumental Effects	Effect on motivation to drink
Increase Positive Incentives	Enthusiasm / disinhibition[a]	Facilitate social networks[c]	Increase
Decrease Negative Incentives	Relieve anxiety, worry[b]	Avoid disapproval[d]	
Decrease Positive Incentives	Decrease in mood	Harm to relationships / Become socially inept	Decrease
Increase Negative Incentives	Hangover / Illness	Argumentative / fights	

Items that map onto Cooper's (1994) model [a] = Enhancement motives; [b] = Coping motives; [c] = Social motives; [d] = Conformity motives.

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Development of the Brief Aspirations and Concerns in Life Inventory and Relationships Among Alcohol Use, Drinking Problems, Motivation and Emotional Regulation

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Abstract

The purpose of this study was twofold: first, it evaluated a newly designed questionnaire called the Brief Aspirations and Concerns in Life Inventory (BACLI) for measuring motivational structure against Cox and Klinger's (2000) well-established measure, the Personal Concerns Inventory (PCI); and second, it examined the relationships between motivational and emotional factors and alcohol consumption and drinking problems. Participants (N = 80) were university students who were randomised into 3 groups and were assessed on two separate occasions approximately 6 weeks apart. All groups were administered measures of current affect, alcohol consumption, drinking motives, drinking problems, and difficulties with emotion regulation at the baseline and follow-up. In addition, one group received the BACLI questionnaire, a second the PCI questionnaire, and a third both the BACLI and PCI questionnaires. The BACLI had good internal consistency and test-retest reliability. It had high correlations with the PCI on all index and composite scores. Preliminary analyses suggested the BACLI is a useful screening measure for motivational structure. Motivational structure was also correlated with coping motives and emotion regulation difficulties. In line with Cox and Klinger's (1988, 1990, 2004a) theoretical model, hierarchical regression analyses showed that drinking for coping motives predicted greater alcohol consumption and difficulties with emotion regulation; drinking for social and coping motives predicted drinking problems.

KEY WORDS: Alcohol, Motivational Structure, Drinking motives, Emotion regulation,

Goals

Development of the Brief Aspirations and Concerns in Life Inventory and Relationships Among Alcohol Use, Drinking Problems, Motivation and Emotional Regulation

Student drinking remains a great concern both in the USA and the UK (Gill, 2000). In the USA, comprehensive and repeated surveys have demonstrated that a large proportion of students regularly drink alcohol, and do so in a manner that is associated with numerous negative consequences (Johnston, O'Malley, & Bachman, 2003; Presley, Meilman, Cashin, & Lyerla, 1996; Wechsler, Lee, Kuo, Seibring, Nelson, & Lee, 2002). Despite the lack of comparative research in the UK, student drinking is estimated to be as equally problematic as in the USA (Gill, 2002).

An important line of research has considered the motivational processes that underlie excessive alcohol consumption (see Cooper, 1994; Cox & Klinger, 1988, 1990, 2004a). For example, Cox and Klinger's motivational model describes how multiple factors (i.e., biological, cultural, environmental, and psychological) interact to influence a person's decision to drink alcohol. These factors lead to certain expectations about how alcohol will bring about changes in affect. Therefore, a person's motives for drinking are based on the expectations that alcohol will lead to affective change in a variety of ways: for example, by (a) increasing positive affect, (b) decreasing negative affect, (c) from alcohol's direct pharmacological effects, or (d) from the indirect effects of drinking on other incentives.

Cooper (1994) described drinking motives based on Cox and Klinger's (1988, 1990, 2004a) model but crossed the valence (positive or negative) with the source (internal and external) of the outcomes the individual expects to achieve by drinking. Cooper described four drinking motives: (a) internally generated positive reinforcement motives (drinking to enhance positive mood), (b) externally generated positive reinforcement motives (drinking to obtain social rewards), (c) internally generated negative reinforcement motives (drinking to

regulate negative emotions), and (d) externally generated negative reinforcement motives (drinking to avoid social rejection). Cooper refers to these motives as enhancement, social, coping, and conformity motives, respectively. Although Cooper's model does not directly map onto that of Cox and Klinger, it is suitably allied to it. Thus, according to Cox and Klinger and Cooper, drinking motives are the most proximal factor to alcohol consumption and related problems.

In addition to motives for drinking, the motivational model (Cox & Klinger, 1988, 1990, 2004a) highlights how a person's other life incentives compete with drinking goals and in themselves are a source of affective change. They described the properties of an individual's goal pursuits as his or her *motivational structure.* The relationship between motivational structure and a variety of substance-use outcome variables has been assessed with both clinical and student samples (see Cox, Blount, Bair, & Hosier, 2002; Cox et al., 2000; Glasner, Cox, Klinger, & Parish, 2001; Klinger & Cox, 1986). Cox et al. (2002) tested 370 university students in four countries and found that as students' alcohol-related problems increased, the strength of the negative relationship between adaptive motivation and alcohol consumption also increased. Palfai and Weaver (2006) also demonstrated the importance of understanding the relationship between student drinking and life goals. Palfai and Weaver found that students who reported less meaning in their goal pursuits engaged in more frequent binge drinking and had more alcohol-related problems.

To assess motivational structure, Klinger, Cox, and Blount (1995, 2003) developed the Motivational Structure Questionnaire (MSQ), and Cox and Klinger (2000) developed a shorter, more user-friendly version of the MSQ called the Personal Concerns Inventory (PCI). The PCI is a comprehensive measure that has excellent clinical utility, in addition to its ability to profile motivational structure. However, the measure is best delivered under instruction from a clinician or suitably trained researcher, especially for those participants who are less

well educated or those undergoing detoxification, for example. The typical duration of administering the PCI (e.g., roughly 30- to 90-minutes) and the concentration and effort required decreases its utility as a screening measure.

As outlined above, Cox and Klinger's (1988, 1990, 2004a) motivational model views alcohol consumption as a means of regulating affect. An individual lacking in emotion regulation skills might be more prone to consuming alcohol as a means of regulating his or her affect. Fox and Hong (2008) reported that dependent drinkers had greater emotion regulation difficulties than did social drinkers. The direct comparison of a person's ability to regulate affect in general and motivational structure has yet to be investigated.

The present study had two aims. The first aim was to evaluate a newly designed questionnaire called the Brief Aspirations and Concerns in Life Inventory (BACLI) against an existing, well-established measure (i.e., the PCI) with student drinkers. The BACLI is a brief (e.g., 5-minute) self-administered questionnaire. The second aim was to examine the relationships between motivational and emotional factors and alcohol consumption and drinking problems. It was hypothesized that: (a) the BACLI would be comparable to the PCI in measuring motivational structure and these measures would be stable across time; (b) motivational and emotion regulation variables would prospectively predict alcohol consumption; and (c) motivational and emotion regulation variables would prospectively predict alcohol-related problems.

Method

Participants

A total of 93 psychology students at Bangor University volunteered to take part in the study as part of their course requirement. The study was advertised for regular drinkers. Participants who were scheduled for two sessions approximately six weeks apart ($M = 43.0$

days; *sd* = 3.3) were randomised into three groups (*n* = 31 per group). A total of 85 participants (91%) completed both sessions. After the removal of outliers[1] (*n* = 5), analyses were conducted on 80 participants, of which 70 were female (87.5%) and 10 were male (12.5%). The majority of participants were British (92%) with the remainder of participants being Other European (4%), African (2%), and Asian (2%). Participants' mean age was 19.6 years (*sd* = 3.3).

Design

A between-groups repeated-measures design was chosen for this study to overcome the possible cross-influence of the new BACLI questionnaire and the PCI questionnaire. One of the three groups (i.e., the BACLI-Only group) received the BACLI questionnaire but not the PCI; a second of the three groups (i.e., the PCI-Only group) received the PCI questionnaire but not the BACLI; and the final group (i.e., the BACLI/PCI-Combined group) received both the BACLI and PCI questionnaires. Counterbalancing the administration of the questionnaires was deemed unsuitable as the similarities of the questionnaires was such that any influence of one questionnaire might influence the other, resulting in exaggerated inter-correlations.

Instruments

Drinking Motives Questionnaire (DMQ) (Appendix C, p. 6-4). The DMQ (Cooper, 1994) is a 20-item questionnaire that assesses the respondent's motives for drinking. The questionnaire asks the respondent to indicate how often he or she drinks for each of the reasons, by choosing from one of five categories: *almost never/never* = 1, *some of the time* = 2, *half of the time* = 3, *most of the time* = 4, *almost always/always* = 5. The questionnaire

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[1] A detailed rationale regarding the removal of the outliers is described in the Data Preparation section below

measures four motives for drinking: *social*, *coping*, *enhancement*, and *conformity*. Cooper reported good internal consistency for each of the four subscales and this was replicated in the present study. Cronbach's alpha coefficient was as follows (present study in parentheses): social = .85 (.81), coping = .84 (.81), enhancement = .88 (.83), and conformity = .85 (.83).

Typical and Atypical Drinking Dairy (TADD) (Appendix D, p. 6-5). The TADD (Hogan, 2005) is a 6-item questionnaire that measures respondents' patterns and amount of alcohol consumption. The respondent records his or her alcohol consumption during the previous 6 weeks in two weekly diaries: one for *typical* weeks and one for *atypical* weeks (i.e., heavier or lighter drinking weeks). Each weekly diary asks the respondent to state the quantity and pattern of alcohol consumption on each day (from Monday through Sunday). The respondent is asked to name the beverages consumed, the percentage of alcohol they contain, the total amount drunk, and when each drinking session started and ended. Typical beverage sizes and their alcohol content are shown in an accompanying table. Finally, the respondent is asked to estimate how many times the *typical* and *atypical* pattern of consumption occurred during the previous 6 weeks. Results obtained with the TADD are strongly correlated with those from the Timeline Follow-Back questionnaire (Sobell & Sobell, 1986) ($r = .83$, $p < .001$; Hogan, 2005).

Rutgers Alcohol Problems Index (RAPI) (Appendix E, p. 6-6). The RAPI (White & Loubouvie, 1989) is a 23-item questionnaire that is designed to measure a variety of problems frequently experienced by students who drink excessively. Respondents are asked to indicate how many times they have experienced particular problems while drinking alcohol or as a result of their drinking in a specified time period (up to three years). This study specified a 6-week time period. The respondent indicates how often each of the 23 problems occurred from among this choice of response options (the value assigned to each item is shown in parentheses): *never (0)*, *1 – 2 times (1)*, *3 – 5 times (2)*, *6 – 10 times (3)*, or *more than 10*

times (4). The total score is the sum of the scores for each item. White and Labouvie reported good internal consistency: Cronbach's alpha coefficient was as follows (present study in parentheses): social = .92 (.78).

Positive Affect and Negative Affect Scale (PANAS) (Appendix F, p. 6-7). The PANAS (Clark, Lee, & Tellegen, 1988) comprises two 10-item mood scales. Respondents are asked to rate the degree to which a single word (representing an emotion or feeling) has occurred in a specified time scale (6 weeks for this study). Respondents must choose from a five-point scale: *Slightly or not at all (1)*, *A little (2)*, M*oderately (3)*, *Quite a bit (4)*, or *Extremely (5).* Clark et al. reported good internal consistency of the items for each of the two subscales and this was replicated in the present study: Cronbach's alpha coefficient was as follows (present study in parentheses): positive items = .87 (.72), negative items = .87 (.76).

Difficulties in Emotional Regulation Scale (DERS) (Appendix G, p, 6-8). The DERS (Gratz & Roemer, 2004) is a 36-item questionnaire that measures six aspects of emotional regulation: non-acceptance of emotional responses (Non-Acceptance), difficulties in goal directed behaviour (Goals), impulse control difficulties (Impulse), lack of emotional awareness (Awareness), limited access to emotional strategies (Strategies), and a lack of emotional clarity (Clarity). Respondents are asked to rate a series of statements according to a five-point scale: *Almost never (0 – 10%)*, *Sometimes (11 – 35%)*, *About half of the time (36 – 65%)*, *Most of the time (66 – 90%)*, or *Almost always (91 -100%).* The internal consistency of the items for each of the six subscales was good: Cronbach's alpha coefficient was greater than .80 in each case. Gratz and Roemer (2004) reported good internal consistency of the items and this was replicated in the present study: Cronbach's alpha coefficient was as follows (present study in parentheses): Non Acceptance = .85 (.91), Goals = .89 (.85), Impulse = .86 (.87), Awareness = .80 (.82), Strategies = .88 (.89), Clarity = .84 (.78).

Personal Concerns Inventory (PCI) (Appendix H, p. 6-9). The PCI (Cox & Klinger, 2000) can be used to measure motivational structure (Cox & Klinger, 2004b). The PCI includes a list of nine life areas: Home and Household Matters; Employment and Finances; Relationships; Love, Intimacy, and Sexual Matters; Self Changes; Education and Training; Health and Medical Matters; Leisure and Recreation; and Other Substance Use. Respondents are required to choose the life areas in which they have concerns; they are then asked to describe their concerns and how they would like to resolve them. The respondents then use 10 scales (Range = 0 to 10) to rate each goal. The indices are as follows: *Commitment, Importance*, *How likely*, *Control*, *What to do*, *Joy*, *Unhappiness*, *When will it happen? Will alcohol be helpful?*, and *Will alcohol be unhelpful?* Cox and Klinger reported only the scale items Cronbach's alpha coefficients, which ranged from .81 to .97: in the present study the overall Cronbach's alpha coefficients for the PCI were $\alpha = .72$ at *Time 1* and $\alpha = .76$ at Time 2.

Brief Aspirations and Concerns in Life Inventory (BACLI) (see Appendix I, p. 6-10). The BACLI, an abridged version of the PCI (see above), was specifically developed for this study. It is a brief measure used to assess motivational structure. It requires respondents to select four life areas (from a list of 12 areas) that occupy their thoughts most often (i.e., Education, Friendships, Finances, Employment, Self Changes, Substance Use, Home and Household Matters, Intimate Relationships, Family, Health and Medical Matters, Leisure and Recreation, Spiritual Matters).

Respondents are asked to think about all of the aspirations and concerns in each of the four selected life areas in turn. They are instructed that some of their goals might be positive (e.g., "things that you want to achieve or accomplish") and some might be negative (e.g., "things that you want to prevent or avoid"). They are next required to rate each life area on

their overall perception of their goals on seven scales (Range = 0 to 10). Respondents rate how *important* their goals are, how *committed* they are to them, the level of *knowledge* they have to achieve them, how much *control* they have over achieving them, the *likelihood* they will achieve them, how much *joy* on achieving them, and how *unhappy* they would be even if their goals did turn out how they wanted. Cronbach's alpha coefficient was $\alpha = .78$ at *Time 1* and $\alpha = .72$ at Time 2, in the present study.

Procedure

Each participant was scheduled for two sessions, each lasting less than one hour. The sessions took place in a large room in the university, which could accommodate up to eight participants in a single session. Each cohort of participants (*range* = 1 to 8 participants, *median* = 2, *sd* = 1.8) was randomised into one of three groups: BACLI-only, PCI-only, and BACLI/PCI-Combined.

On arrival at the designated room, each participant read and signed a consent form. A postdoctoral clinical psychology student administered and instructed participants on all questionnaires. Participants irrespective of group allocation received the following questionnaires: the PANAS (Clark, Lee, & Tellegen, 1988), TADD (Hogan, 2005), DMQ (Cooper, 1994), RAPI (White & Loubouvie, 1989), and DERS (Gratz & Roemer, 2004). Each group received the following additional questionnaires: the BACLI-only group received the BACLI questionnaire; the PCI-only group received the PCI questionnaire; and the BACLI/PCI-Combined group received the BACLI and PCI questionnaires, in this order.

Approximately six weeks later participants were re-administered all baseline measures in the same order. Participants were thanked, debriefed, and dismissed.

Data Preparation

As mentioned above, a total of 93 participants volunteered to take part in the study, with 85 completing both the *Time 1* and *Time 2* sessions. The data were first examined for outliers on the principal dependent variable (i.e., Mean Weekly Alcohol Consumption). Box Plots and QQ plots were examined for normal distribution and Skew, Kurtosis, and Kolmogrov Smirnoff Statistics were examined. After the removal of outliers ($n = 5$), Skew and Kurtosis statistics reduced to < 1.0 and Kolmogorov Smirnoff became non-significant: inferring the distribution was normal, which was confirmed by re-examination of Box and QQ plots.

A planned factor analysis of the BACLI questionnaire and of the PCI questionnaire was deemed undesirable due to the small n in this study. Comrey and Lee (1992) gave the following guidelines for participant ratios: $n = 50$ (very poor); $n = 100$ (poor); $n = 200$ (fair); $n = 300$ (good); $n = 500$ =(very good); and $n = 1000+$ (excellent). Therefore, a composite score was derived based on previous work of Cox and Klinger (2004b).

Cox and Klinger (2004b) reported findings from three studies that factor analysed the PCI. In each case the resulting analyses generated two factor solutions, which they labelled adaptive and maladaptive. Two of the factor solutions[2] found that the *adaptive* factors loaded positively on importance, commitment, knowledge, control, likelihood, and joy indices. In contrast, the factors labelled *maladaptive* loaded negatively on some of these items[3] and positively on unhappiness. A priori composite score for both the BACLI and PCI was devised for this study based on these previous factor solutions. The following formula was used:

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[2] One factor solution loaded positively on only some subscales: Commitment, Likelihood, Control, and Konwledge.
[3] One factor solution loaded negatively on Likelihood, Control, and Knowledge and one on Commitment, Joy, and Importance.

(1) BACLI Adaptive motivation = (Mean Importance + Mean Commitment + Mean Knowledge + Mean Control + Mean Likelihood + Mean Joy + Mean Reversed Scored Unhappiness) / 7.

(2) PCI Adaptive motivation = (Mean Importance + Mean Commitment + Mean Knowledge + Mean Control + Mean Likelihood + Mean Joy + Mean Reversed Scored Unhappiness) / 7.

Analysis Strategy

There are five parts to the analysis strategy. First, baseline differences between groups and gender were analysed with *t*-tests and Chi square tests. Second, the potential influence of the BACLI questionnaire on the PCI questionnaire is examined. The possible cross influence between the BACLI and PCI questionnaires for the BACLI/PCI-Combined group is unidirectional (i.e., the BACLI questionnaire was always administered prior to the PCI). It is therefore assumed that the BACLI-Only group and the BACLI/PCI-Combined group would not differ on the BACLI questionnaire, and any potential influence of the BACLI questionnaire on the PCI questionnaire was assumed should there be any significant differences between the PCI-only group and the BACLI/PCI-Combined group on any of the PCI questionnaire indices. The following comparisons were undertaken with independent *t*-tests on: (a) the BACLI indices between the BACLI-Only group and the BACLI/PCI-Combined group and (b) the PCI indices between the PCI-Only group and the BACLI/PCI-Combined group.

Third, the ability of the BACLI questionnaire to adequately measure motivational structure in comparison to the PCI was assessed in two ways: (a) by examining the associations between the seven indices of the BACLI and PCI questionnaires using paired *t*-tests (for the BACLI/PCI-Combined group), and (b) by examining the correlations between

the BACLI and PCI composite measures and measures of affect, drinking motives, emotion regulation, alcohol consumption and drinking problems.

Fourth, the stability of the BACLI and PCI questionnaires was analysed across time with paired *t*-tests and correlational analyses of the *Time 1* and *Time 2* measures.

Finally, relationships between emotion regulation, drinking motives, alcohol consumption and drinking problems were assessed. Repeated-measures ANOVA was used to assess the changes between *Time 1* and *Time 2* alcohol consumption for males and females. Hierarchical regression analysis was used to assess the ability of *Time 1* factors to predict *Time 2* alcohol consumption and drinking problems.

A priori power analysis was conducted to establish the sample size necessary to satisfy the regression analysis. With a medium effect size of $f = .15$, and a statistical power of .80, and $p = .05$ while considering the number of independent variables ($k^b = 5$), Cohen (1992) recommends $n = 91$ participants for optimal power. The current sample size falls just short of this number. Motivational structure was assessed in just $n = 54$ of the current sample, which rendered it unsuitable for the current regression analysis. Therefore, the independent measures of *Time 1* emotion regulation (DERS-total score), and drinking motives (Social, Coping, Enhancement, and Conformity) were regressed onto the dependent measures of alcohol consumption and drinking problems, separately.

Results

Baseline Analyses

Although the mean weekly alcohol consumption of male participants at *Time 1* ($M =$ 34.1 units, $sd = 13.0$) was higher than female participants ($M = 25.9$ units, $sd = 16.7$), it was not statistically different, $t(78) = 1.47$, $p > .05$. Table 1 displays the baseline scores for drinking problems, PANAS scores, motives for drinking, and emotion regulation subscales.

There were gender differences only on the emotion regulation measure (i.e., DERS goals, DERS strategies and DERS total score). Female participants had significantly higher DERS goal scores, $t(78) = 2.88$, $p < .01$, DERS strategies scores, $t(76) = 2.34$, $p < .05$, and DERS total Scores, $t(75) = 2.42$, $p < .05$ than male participants.

Insert Table 1 about here

Motivational Structure

The BACLI-only (males $n = 3$; females $n = 23$), PCI-only (males $n = 4$; females $n = 22$), and the BACLI/PCI-combined (males $n = 3$; females $n = 25$) groups were examined for baseline differences on each of the following variables: Weekly Alcohol Consumption, RAPI, PANAS-PA, PANAS-NA, Social motives, Coping motives, Enhancement motives, Conformity motives, DERS-Non-Acceptance, DERS-Goals, DERS-Impulse, DERS-Awareness, DERS-Strategies, DERS-Clarity, and DERS-Total. There was one group difference in Social motives: $F(2,77) = 3.87$, $p < .05$). Post hoc LSD tests showed that the PCI-only group ($M = 3.91$, $sd = .79$) had significantly higher Social motives for drinking than the BACLI-only group ($M = 3.35$, $sd = .75$), $p = .01$, and the BACLI/PCI-combined group ($M = 3.47$, $sd = .74$), $p = .04$.

Potential Cross Influence between the BACLI and PCI

In order to establish whether participants' completion of the BACLI questionnaire influenced the completion of the PCI questionnaire, means scores on each of the seven indices were examined for the three groups (see Table 2). First, the BACLI indices for the BACLI-Only group and the BACLI/PCI-Combined group were compared in a series of independent-sample *t*-tests. There were no significant differences between the groups on any of the indices. Second, the PCI Index scores for the PCI-Only group and the BACL/PCI-Combined group were compared in a series of independent *t*-tests. There was one significant difference

between the groups: the PCI-Only group ($M = 6.18$, $sd = 1.18$) had significantly lower mean Likelihood scores than the BACLI/PCI-Combined group ($M = 6.91$, $sd = 1.18$), $t(52) = 2.27$, $p < .05$. Finally, the Index scores on the BACLI and the PCI for the BACLI/PCI-combined group were examined in a series of paired-sample *t*-tests. There were no significant differences on any of the indices. Therefore, it is possible that the BACLI questionnaire might have influenced the PCI Index of Likelihood (i.e., making individuals more optimistic that they might achieve their goals), although this might equally be a result of a sampling error. However, at *Time 2* there were no between- or within-group differences on any of the PCI or BACLI indices.

Insert Table 2 about here

Comparisons of the BACLI and PCI

The BACLI and PCI composite and index scores were examined for differences between gender at *Time 1* and *Time 2*: there were no gender differences on any of the index measures or composite scores at either time points. A paired *t*-test showed that there was no within-group difference between the BACLI composite scores ($M = 7.51$, $sd = .82$) and the PCI composite scores ($M = 7.58$, $sd = .89$) (i.e., $t < 1$). The two scores were significantly correlated ($r = .70$, $n = 28$, $p < .001$, two tails). At *Time 2* the composite scores derived from the BACLI ($M = 7.53$, $sd = .84$) and the PCI ($M = 7.54$, $sd = .86$) remained equivalent (i.e., $t < 1$), and again, these two scores were significantly correlated ($r = .88$, $n = 28$, $p < .001$, two tails). The PCI and BACLI scores were comparable.

The BACLI and PCI were examined for stability across time. A series of paired *t*-tests were conducted on the *Time 1* and *Time 2* BACLI and PCI indices, separately. There were no significant differences on the BACLI indices between *Time 1* and *Time 2*. There was one significant difference on the PCI indices: at *Time 1* ($M = 8.74$, $sd = .77$) participants rated

their concerns as more important than at *Time 2* ($M = 8.49$, $sd = 1.05$), $t(53) = 2.03$, $p < .05$. All of the paired comparisons were significantly correlated: BACLI correlations ranged from $r = .35$ to $r = .73$, and the PCI correlations ranged from $r = .46$ to $r = .64$. The composite scores were also stable across time. The BACLI composite correlation between *Time 1* ($M = 7.54$, $sd = .74$) and *Time 2* ($M = 7.49$, $sd = .76$) was $r = .70$, ($n = 54$, $p < .001$, two tails). The PCI composite correlation between *Time 1* ($M = 7.53$, $sd = .88$) and *Time 2* ($M = 7.44$, $sd = .91$) was $r = .61$ ($n = 54$, $p < .001$, two tails). The paired differences for both composite scores were non-significant (i.e., $t < 1.$).

Cronbach's alpha was calculated to determine the internal consistency of the BACLI items and PCI items. The results indicate that the BACLI had good internal consistency at *Time 1* and *Time 2* ($\alpha = .78$ and $\alpha = .72$, respectively). In order to ensure an adequate number of cases were included in the analyses, the PCI items were restricted to four concerns (i.e., a total of 40 items): the internal consistency was good at *Time 1* and *Time 2* ($\alpha = .72$ and $\alpha = .76$, respectively).

Comparisons of Motivational Structure and Other Outcome Measures

Table 3 displays the correlations between the BACLI and PCI composite scores and alcohol consumption, drinking problems, drinking motives, positive and negative affect, and emotion regulation at *Time 1* (above the diagonal) and *Time 2* (below the diagonal). The PCI composite score was negatively correlated with the PANAS-NA ($r = -.39$), Social Motives ($r = -.30$), and DERS clarity($r = -.31$), which are all in the expected direction. The BACLI composite score was positively correlated with the PANAS-PA ($r = .32$) and negatively correlated with DERS Clarity ($r = -.36$), again in the expected direction. The remainder of the correlations, although non-significant, were also in the expected direction.

Insert Table 3 about here

The correlations between the composite score for the BACLI and the other outcome measures (i.e., Affect, Motives, DERS) at *Time 1* remained significant at *Time 2* (see Table 3.). The BACLI composite score was positively correlated with the PANAS-PA ($r = .35$) and negatively correlated with DERS Clarity ($r = -.54$), with additional negative correlations with Coping Motives ($r = -.41$), DERS-Strategies ($r = -.32$), and DERS-Total ($r = -.35$). The PCI composite score remained negatively correlated with Social Motives ($r = -.32$), and DERS clarity($r = -.33$), although not with the PANAS-NA ($r = -.18$), although there were additional negative correlations with Coping Motives ($r = -.31$), DERS-Impulse ($r = -.31$), and DERS-Strategies ($r = -.34$).

Baseline Measures as Predictors of Alcohol Consumption and Drinking Problems

There were few significant correlations between alcohol consumption and the other measures either at *Time 1* or *Time 2*. At *Time 1*, alcohol consumption was correlated with Coping Motives ($r = .36, p < .05$) and drinking problems ($r = .28, p < .05$). At *Time 2* these correlations remained significant, with additional positive correlations with Social Motives ($r = .30, p < .05$) and Enhancement Motives ($r = .29, p < .05$) for drinking. Drinking problems had far more intercorrelations than did alcohol consumption. For example, drinking problems were positively correlated with measures of emotional regulation (i.e., three of the six subscales at *Time 1* and all six subscales at *Time 2)*, PANAS-NA (i.e., at both time points) and drinking motives (i.e., all but Conformity Motives at *Time 1*). Coping Motives were positively correlated with all the emotion regulation subscales (excluding DERS-Goals) at both *Time 1* and *Time 2*—such that those who reported difficulties managing their emotions tended to drink to cope.

Hierarchal multiple regression was used to fully explore the relationship between baseline factors (i.e., drinking motives, emotion regulation) and the dependent variables of

interest (i.e., alcohol consumption and drinking problems). The results, shown in Table 3 indicate some multicollinearity among the variables, but the intercorrelations were relatively weak and were not considered problematic. Before proceeding with the multiple regression analysis, the data were examined to ensure that they did not violate the assumptions of the test. The dependent variables, *Time 2* average weekly alcohol consumption and alcohol-related problems, were normally distributed. Scatterplots revealed no problems with lack of linearity or outliers in the data. The data were further tested for homoscedasticity: the standardised residuals were plotted against the standardised predicted values. The spread of the residuals at every set of values in the independent variables was equal, thus confirming the homoscedasticity of the distributions.

Differences from baseline to the six-week follow-up in alcohol consumption and alcohol-related problems were examined. A repeated-measures ANOVA in which Time (Time 1, Time 2) was the repeated-measures factor and Gender (Male, Female) was the between-participants factor was conducted to examine changes in alcohol consumption across time. Neither the significant main effect for time ($F < 1.0$) nor the interaction between Gender and Time was significant ($F = 1.0$). Male participants' weekly alcohol consumption at *Time 1* was $M = 34.1$ units ($sd = 13.0$) and at *Time 2* was $M = 34.4$ units ($sd = 12.0$); female participants consumption at *Time 1* was $M = 26.5$ units ($sd = 16.7$) and at *Time 2* was $M = 22.2$ units ($sd = 14.8$). Drinking problems were examined changes across time with a paired *t*-test. There were no significant changes from *Time 1* ($M = 10.4$, $sd = 6.6$) to *Time 2* ($M = 10.5$, $sd = 7.9$), $t < 1.0$.

Table 4 displays the results of a hierarchical multiple regression analysis in which the dependent variable was average weekly alcohol consumption at *Time 2*. To control for the influence of Gender, it was entered in Step 1. The forward selection technique was selected for each of the next two blocks. The emotion regulation total score (DERS-Total) was

entered in the next block and drinking motives (Coping, Enhancement, Social, and Conformity) were each entered into the last block. The order in which the independent variables were entered was determined theoretically on the basis of the degree of proximity between each independent variable and the dependent variable.

Insert Table 4 about here

As expected, gender significantly predicted alcohol consumption and accounted for a total of 7% of the variance. Males had higher weekly alcohol consumption than females. Emotion regulation did not significantly add to the model. In Step 2, drinking for Coping motives uniquely predicted 11% of the variance in alcohol consumption. The final model explained a total of 19% of the variance in alcohol consumption at *Time 2*, $F(2,77) = 8.72$, $p < .001$.

Table 5 displays the results of a hierarchical multiple regression analysis in which the dependent variable was alcohol-related problems (RAPI scores) at *Time 2*. To control for its influence, Gender was entered in Step 1. The forward selection technique was selected for each of the next two blocks. In the following order, emotion regulation (DERS-Total score), and drinking motives (Coping, Enhancement, Social, and Conformity) were each entered into the two remaining blocks.

Insert Table 5 about here

Gender was not a significant predictor of alcohol-related problems. In Step 2 the variable representing emotional regulation significantly added to the model and accounted for a total of 22% of the variance. Participants scoring higher on difficulties with emotion regulation reported significantly more alcohol-related problems at the six-week follow-up. In Step 3, drinking for social motives uniquely predicted a further 12% of the variance in

drinking problems. Finally, in Step 4 coping motives significantly improved the model, accounting for an additional 4% of unique variance in drinking problems. The final model explained a total of 34% of the variance in drinking problems at *Time 2*, $F(4,75) = 11.29$, $p < .001$. Excluding Gender, each of the predictor variables remained significant in the final model.

Discussion

This study successfully achieved its two aims. First, it compared and contrasted the BACLI questionnaire with the PCI questionnaire. It was shown that the BACLI composite score for motivational structure adequately represented that of the PCI. Second, it closely examined the relationships between motivational and emotion regulation variables with alcohol consumption and alcohol-related problems. A single motivational variable was a significant predictor of alcohol consumption and two motivational variables and an emotion regulation variable were significant predictors of alcohol-related problems.

Baseline measures suggested that the study sample was somewhat representative of the student population in the UK, although gender composition (i.e., the greater number of females in the sample) is an imbalance typical of university psychology students in the UK. Male participants' alcohol consumption was approximately at the level reported previously in the UK (e.g., see Newbury-Birch, White, & Kamali, 2000; Webb, Ashton, Kelly, & Kamali, 1998). Female participants' alcohol consumption was higher than previously reported in the literature (e.g., see Newbury-Birch et al.; Webb, et al.), although female alcohol consumption in the UK has increased significantly in the past decade (Office for National Statistics, 2004) and this level might be more in line with the national trend.

The first hypothesis that the composite score derived from the BACLI questionnaire would adequately represent that of the PCI questionnaire was supported. The design of the

study enabled this to be assessed in two ways: first, by examining the within-group inter-correlations between the BACLI and PCI indices and composite scores, and second, by examining between-group inter-correlations with other outcome measures.

The inter-correlations between the BACLI and PCI at *Time 1* and *Time 2* were high for all index scores and the composite scores. However, these within-group measures were susceptible to the cross-influence of the BACLI questionnaire on the PCI. Participants were required to consider their goals using similar life areas and rate these goals on very similar dimensions on both measures. Nevertheless, a number of contrasts revealed just one potential influencing factor: those who completed the BACLI prior to the PCI anticipated that they were more likely to achieve their goals. This potential influence was not observed at *Time 2*, which weakens the likelihood of any cross-influence. In addition, at baseline the PCI-Only group had other group differences (i.e., higher Social motives), which weakens the case for possible cross-influence.

The between-group inter-correlations between the BACLI and PCI composite scores and other outcome measures were also fairly consistent with one another. For example, as expected adaptive motivational structure was negatively correlated with drinking motives (e.g., notably Coping motives) and emotional regulation difficulties (e.g., most notably DERS-Clarity). In addition, the BACLI questionnaire was correlated with DERS-Strategies and the DERS-Total score. These findings suggest that those who are less adaptive in their goal pursuits were (a) more likely to drink to regulate negative affect, which is consistent with Cox and Klinger's (1988, 1990, 2004a) theory; and (b) less clear about their feelings and believed they were less able to regulate their emotions, which might also underpin drinking alcohol to regulate affect.

In the present study the motivational structure composite scores were not correlated with alcohol consumption or alcohol-related problems. This finding is consistent with Cox et

al.'s (2002) four nations study. They found that adaptive motivation was not correlated with alcohol consumption in the sample as a whole, but was a significant predictor of alcohol consumption only for those students who experienced drinking problems. The lack of power in the present study precluded a replication of this analysis. However, it is noteworthy that the relationship between the BACLI composite score[4] and drinking problems approached significance ($p = .08$) at *Time 2*.

The second hypothesis that motivational and emotional factors would predict alcohol consumption at the six-week follow-up was partially supported. As expected, being male predicted greater alcohol consumption at the follow-up. After controlling for gender, drinking for Coping motives at the baseline uniquely predicted alcohol consumption at the follow-up. This finding is at odds with previous findings (e.g., Stewart, Loughlin, & Rhyno, 2001) that reported positive reinforcement reasons (i.e., Enhancement and Social motives) more strongly predicted heavy alcohol consumption rather than negative reinforcement reasons (i.e., Coping and Conformity motives), which are usually associated with drinking problems; however, this finding is consistent with Cox and Klinger's model (e.g., drinking to reduce negative affective states is indicative of problematic drinking).

Difficulties regulating emotions at the baseline, however, did not significantly predict alcohol consumption. This was the first study to prospectively examine this relationship. It remains possible that difficulties with emotion regulation would be more positively correlated with alcohol consumption for those students who experience the greatest number of drinking problems (as is typically found with Coping motives).

The final hypothesis that motivational and emotional factors would predict drinking problems at the six-week follow-up was fully supported. Difficulties with emotion regulation was a significant predictor of drinking problems, accounting for 22% of the variance.

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[4] The BACLI composite score is an estimated score of Cox et al.'s adaptive motivation.

Drinking for Social motives at the baseline also uniquely predicted drinking problems at the follow-up, as did Coping motives, but to a lesser degree. The model, however, is not fully consistent with the findings of Stewart et al. (2001) who found that negative reinforcement reasons (i.e., Coping and Conformity motives) are usually associated with drinking problems rather than positive reinforcement reasons (i.e., Enhancement and Social motives). However, these findings are consistent when considering that, overall, the sample comprised social drinkers.

In conclusion, the preliminary analysis of the BACLI suggests that this measure has good validity and reliability and that can provide a useful screening measure for motivational structure. In line with Cox and Klinger's (1988, 1990, 2004a) theoretical model, motivational structure was correlated with internally driven negative reinforcement motives and difficulties with emotion regulation in general. Difficulties with emotion regulation predicted drinking problems, as did internally driven negative reinforcement (Coping) motives and externally generated positive reinforcement (Social) motives. Drinking for Coping motives predicted alcohol consumption.

There are several limitations and recommendations regarding this study. First, the study design, although necessary to prevent cross influence of the BACLI and PCI, weakened the overall power to assess the influence of motivational structure on alcohol consumption and related problems. Second, although the BACLI questionnaire, as did the PCI questionnaire, had high internal consistency and good test-retest reliability, future research employing a larger sample size is necessary to be fully confident in the stability and reliability of the BACLI. Finally, the BACLI requires future research with a clinical population in order to establish its proposed effectiveness as a screening tool.

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Table 1

Means and standard deviations for baseline scores on Drinking Problems, Positive and Negative Affect, Motives for Drinking, and Difficulties in Emotion Regulation (DERS) subscale and total scores between Males and Females.

	Males ($N = 11$)		Females ($N = 70$)		Total ($N = 81$)	
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*
RAPI	9.20	5.65	10.63	6.74	10.45	6.59
PANAS PA	37.89	5.58	36.07	5.10	36.28	5.11
PANAS NA	20.56	6.11	22.54	6.49	22.32	6.44
Social Motives	3.62	.47	3.56	.83	3.57	.79
Enhancement Motives	3.08	.97	2.97	.92	2.98	.92
Coping Motives	2.04	1.01	2.25	.81	2.22	.84
Conformity Motives	1.67	.37	1.44	.62	1.46	.60
DERS Non-Acceptance	10.33	4.90	13.89	6.36	13.48	6.29
DERS Goals*	11.60	2.55	15.77	4.47	15.25	4.48
DERS Impulse Control	8.60	2.32	10..91	4.28	10.63	4.14
DERS Awareness	14.30	4.81	15.44	4.70	15.30	4.69
DERS Strategies*	12.80	3.99	17.99	6.81	17.32	6.73
DERS Clarity	10.70	3.80	11.14	3.38	11.09	3.41
DERS Total*	67.67	16.05	85.32	21.02	83.26	21.19

**Females scored significantly higher than males, $p < .05$.*

Table 2

Means and standard deviations of the Index Scores on the BACLI and PCI Questionnaires for the BACLI-Only Group, PCI-Only Group, BACLI/PCI-Combined Group and the Total Scores for the Groups Combined

	BACLI-Only Group ($n = 26$)	PCI-Only Group ($n = 26$)	BACLI/PCI-Combined Group ($n = 28$)		Groups Collapsed ($n = 54$)	
	M (*SD*)	*M* (*SD*)	BACLI *M* (*SD*)	PCI *M* (*SD*)	BACLI *M* (*SD*)	PCI *M* (*SD*)
Importance	8.32 (.85)	8.92 (.74)	8.45 (1.05)	8.56 (.77)	8.38 (.95)	8.74 (.77)
Commitment	7.75 (1.09)	7.32 (1.10)	7.97 (1.38)	7.84 (1.50)	7.87 (1.24)	7.59 (1.33)
Likelihood	7.21 (1.04)	6.18 (1.18)	7.12 (1.11)	6.91 (1.18)	7.16 (1.07)	6.55 (1.22)
Knowledge	7.08 (1.03)	6.84 (1.72)	6.88 (1.35)	6.66 (1.60)	6.97 (1.20)	6.75 (1.64)
Control	6.34 (1.02)	6.96 (1.49)	6.29 (1.27)	6.72 (1.50)	6.31 (1.14)	6.83 (1.49)
Joy	8.54 (.92)	8.62 (1.39)	8.60 (1.03)	8.60 (.87)	8.53 (.97)	8.61 (1.14)
Unhappiness	2.23 (1.54)	2.53 (2.08)	2.71 (1.84)	2.27 (2.00)	2.48 (1.70)	2.39 (2.02)

Table 3

Intercorrelations of motivational structure, alcohol consumption, drinking problems, affective, motives and emotion regulation variables at Time 1 (above the diagonal) and Time 2 (below the diagonal)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. PCI	1	.70**	.01	-.16	.21	-.39**	-.30*	-.08	-.18	-.10	-.11	-.18	-.22	-.05	-.19	-.31*	-.24
2. BACLI	.88**	1	.08	.04	.32*	-.15	.12	-.16	.00	-.16	-.14	-.07	-.06	-.22	-.17	-.36**	-.26
3. *M* Alcohol Consumption	.04	-.09	1	.28*	.07	-.09	.20	.36**	.25*	.13	.05	-.16	.15	.23*	.04	.13	.10
4. RAPI total score	-.19	-.24	.36**	1	.03	.32**	.30**	.42**	.36**	.19	.25*	.22	.44**	.37**	.18	.14	.37**
5. Panas positive	.21	.35*	.18	-.06	1	.00	.37**	-.01	.38**	.09	-.16	-.20	-.14	-.46**	-.21	-.48**	-.37**
6.Panas negative	-.18	-.22	-.20	.42**	-.07	1	.29**	.27*	.21	.17	.29**	.43**	.54**	.04	.42**	.22*	.48**
7. Motives Social	-.32*	-.21	.30**	.47**	.18	.22	1	.35**	.55**	.40**	.15	.13	.29**	-.08	.09	-.14	.12
8. Motives Coping	-.31*	-.41**	.27*	.56**	-.10	.35**	.37**	1	.20	.19	.24*	.03	.51**	.47**	.35**	.28*	.45**
9. Motives Enhancement	-.09	-.14	.29*	.27*	.25*	.05	.50**	.15	1	.19	.12	.22	.20	-.12	.01	-.12	.09
10. Motives Conformity	-.12	-.11	.15	.44**	.21	.21	.41**	.18	.25*	1	.22	-.02	.13	.06	-.05	.00	.09
11. DERS 1 Non-accept.	-.20	-.19	-.20	.28*	-.18	.54**	.25*	.30**	-.01	.16	1	.32**	.29**	.41**	.58**	.35**	.76**
12. DERS 2 Goals	-.08	-.22	-.19	.28*	-.07	.42**	.28**	.14	.24*	.07	.54**	1	.37**	.04	.52**	.22*	.60**
13. DERS 3 Impulse	-.31*	-.22	.02	.49**	-.14	.62**	.31**	.51**	.17	.16	.46**	.49**	1	.36**	.47**	.41**	.67**
14. DERS 4 Awareness	.06	-.07	.07	.43**	-.23*	.17	-.09	.39**	-.13	-.04	.24*	.17	.31**	1	.31**	.59**	.63**
15. DERS 5 Strategies	-.34*	-.32*	-.10	.33**	-.23	.49**	.26*	.32**	.12	.11	.68**	.57**	.64**	.30*	1	.41**	.83**
16. DERS 6 Clarity	-.33*	-.54**	.05	.32**	-.38**	.36**	.13	.40**	.03	.06	.40**	.39**	.45**	.47**	.51**	1	.68**
17. Total DERS	-.26	-.35**	-.08	.45**	-.28*	.57**	.26*	.44**	.09	.11	.79**	.71**	.74**	.55**	.88**	.71**	1

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 4

A Hierarchical Multiple Regression Analysis of the Ability of Emotion Dysregulation and Drinking Motives to Predict Average Weekly Alcohol Consumption at Time 2 Beyond That Accounted for by Gender

Variable	ß	$R^2(Adj.\ R)$	ΔR^2	ΔF(df)	Δp
Step 1		.07 (.06)	.07	6.27 (1,78)	.014
Gender	.27**				
Step 2		.19 (.16)	.11	10.41 (1,77)	.002
Gender	.30**				
Coping Motives	.33**				

Note. *** $p < .001$; ** $p < .01$.

Table 5

A Hierarchical Multiple Regression Analysis of the Ability of Emotion Dysregulation and Drinking Motives to Predict Drinking Problems at Time 2 Controlling for Gender

Variable	ß	$R^2(Adj.\ R)$	ΔR^2	ΔF(df)	Δp
Step 1		.01 (.00)	.01	.73 (1,78)	.394
Gender	.10				
Step 2		.22 (.20)	.21	20.79 (1,77)	< .001
Gender	.03				
Total DERS	.48***				
Step 3		.34 (.31)	.12	13.57 (1,76)	< .001
Gender	.01				
Total DERS	.43***				
Social Motives	.35**				
Step 4		.38 (.34)	.04	4.53 (1,75)	.022
Gender	.00				
Total DERS	.33**				
Social Motives	.28**				
Coping Motives	.23*				

Note. *** $p < .001$; ** $p < .01$.

Extended Discussion: Contributions to Theory and Practice

This thesis focused on relationships among people's use of alcohol, how they manage their emotions, and the patterns by which they strive to achieve their goals (i.e., their motivational structure). The review paper proposed that alcohol is often used as a means of enhancing emotion regulation strategies. It compared and contrasted current theories of the motivational aspects of alcohol use and aligned these to a current theory of emotion regulation. In the present section, the implications of this synthesis of theories are discussed in terms of future research and clinical-practice.

The empirical paper investigated the prospective ability of emotion and motivational variables to predict alcohol consumption and alcohol problems in a sample of student drinkers. In addition, it assessed the ability of a new, brief questionnaire (i.e., the BACLI) to measure motivational structure as compared to a well-established, comprehensive questionnaire (i.e., the PCI; Cox & Klinger, 2000). In addition to emotion regulation, this section will also consider the future research and clinical-practice applications of measures of motivational structure (i.e., the BACLI and the PCI questionnaires).

Implications for Theory and Future Research

Cooper's (1994) seminal paper identifying four broad motives for drinking (i.e., enhancement, coping, social, and conformity) is widely accepted as encapsulating the primary reasons that individuals give for drinking (Cooper, Frone, Russell, & Muda, 1995; MacLean & Lecci, 2000). This convenient four-factor model has generated a large amount of research. For example, Cooper's model has been studied in terms of its factor structure and has been found to be a good fit to the data (MacLean & Lecci, 2000); it has

been reliably linked to personality variables (Theakston, Stewart, Dawson, Knowlden-Loewen, & Lehman, 2004) and problematic patterns of drinking (Cooper et al., 1995). The model has become a popular way of identifying drinking motives (e.g., a PsychINFO search revealed that Cooper's and Cooper et al.'s drinking motives papers were cited more than 450 times).

Despite the popularity of Cooper's (1994) model, the presented review paper suggested that it has a number of limitations. It was argued that these limitations stem from Cooper's slight misinterpretation of Cox and Klinger's (1988, 1990, 2004a) seminal model: the motivational model of alcohol use. Cooper's suggestion that the four-factor model is based on crossing the dimensions of internal and external motivation with positive and negative reinforcement is more limiting than Cox and Klinger's model, which crossed direct pharmacological and indirect instrumental effects with positive and negative incentives. It was shown that each of Cooper's broad categories of drinking motives might stem from multiple direct and indirect effects, and from positive and negative incentives of drinking rather than from a single subcategory of this dimension. Although Cox and Klinger's model can adequately account for drinking for enhancement, coping, conformity, or social reasons, their four-factor model does not assume the simplistic single dimension approach of Cooper.

Future research should directly compare a drinking motives model based on Cox and Klinger's (1988, 1990, 2004a) approach with Cooper's (1994) well-established drinking motives model. To achieve this objective, a questionnaire measuring drinking motives based on Cox and Klinger's theoretical model would need to be developed. A series of positive and negative incentive items based on alcohol's direct pharmacological effects (e.g., "I drink alcohol because it disinhibits me", "I drink alcohol because it relaxes me") and its indirect instrumental effects (e.g., "I drink alcohol because it helps me to

socialise better", "I drink alcohol because it might upset my friends if I do not") would need to be generated. These could then be compared to Cooper's categories of drinking motives. This might establish whether Cooper's drinking motives are indeed comprised of multiple incentives.

Of course, the proposal outlined above is perhaps too simplistic in nature and suffers from similar drawbacks to Cooper's (1994) approach. People often drink for numerous reasons (e.g., sometimes to relax after a hard day and sometimes to enhance a special occasion). As with Cooper's approach, respondents can potentially cite various reasons for drinking on different occasions, thus obscuring their predominant drinking motives. It is necessary to identify motives for situation-specific events and how these are derived (e.g., from participant expectancies). This, approach has the potential to be aligned to certain aspects of emotion regulation.

It is necessary to investigate whether specific motives for drinking are closely linked to emotion regulation strategies. The reason is that motives for drinking might vary according to emotion regulation strategies that a person uses. For instance, an emotion regulation strategy of situation selection might be motivated by specific direct pharmacological effects (e.g., disinhibition) and by specific instrumental effects (e.g., by increasing access to positive incentives—to have a good time socially); whereas response modulation might be motivated by other specific direct pharmacological effects (e.g., anxiolytic) and by specific instrumental effects (e.g., by decreasing negative incentives—to prevent the continued worrying about a negative emotional experience).

Cox and Klinger's (1988, 1990, 2004a) approach to drinking motives, unlike Cooper's (1994), enables emotion regulation theory, such as that proposed by Gross and Thompson (2007), to be integrated. Future research might be fruitful to enhance the

understanding of this complex area and, importantly, also improve the treatment approaches to alcohol abuse (see below).

The development of the BACLI also has theoretical implications that warrant further research. It is important to note that although designed to measure motivational structure, the BACLI deviates somewhat from the PCI in that it does not measure individual goal pursuits. The BACLI requires respondents to aggregate their goals across a whole life area. In the BACLI's current form, it is unclear what considerations an individual makes when he or she is rating the life area. It is possible that respondents rate each life area on their single most pressing concerns, rather than on a true aggregate. An improvement in the measure would invite respondents to estimate the number of concerns and aspirations they have in the selected life area and how many of these they are considering while giving their ratings of the life areas.

Research establishing the possible relationship between motivational structure and general psychopathology might be further enhanced by the development of the BACLI questionnaire. The BACLI questionnaire provides a fast and simple screening tool for motivational structure that was previously unattainable. The clinical application of the BACLI is described more fully below.

Implications for Clinical Practice

The BACLI questionnaire has direct clinical applications for the treatment of alcohol-related, and possibly other substance-use, disorders. Cox and Klinger (2002) have shown that people who are less adaptive in motivational structure are less able to control their drinking; in addition, they found that those substance abusers with more adaptive motivational structure have (a) a greater motivation to change, and (b) better treatment outcomes. These findings are significant in that Cox and Klinger reported that their

systematic motivational counselling approach (SMC; Cox & Klinger, 2004b) can improve motivational structure, and it can reduce substance use.

Previously, clinicians wishing to measure motivational structure in clinical practice were required to undertake a thorough assessment using the PCI. This approach, although beneficial in many respects (i.e., it being therapeutic in itself) has several major drawbacks. First, the PCI assessment is a rigorous process especially for those individuals with reduced cognitive functioning (e.g., through chronic substance abuse); they might find the process an arduous task. Second, due to the personal nature of the PCI, the establishment of trust and understanding between the clinician and client is necessary to ensure it benefits from the collaborative approach intended. Thus, an accurate PCI assessment might require the development of rapport building over more than a single session. Finally, in some instances substance abusers display appropriate motivational structure, which precludes them from SMC.

The BACLI could be used to overcome the drawbacks described above. In clinical practice this brief measure could be either self-administered or be administered by generic mental health workers to screen those who are most suitable for SMC. This would then (a) provide a suitable means of identifying those who would benefit most from SMC (i.e., identify those with motivational deficits in their motivational structure) and (b) maximise resources by enabling specialist clinicians to target those individuals who might derive the greatest benefit from the SMC. In sum, the BACLI could be incorporated into the regular assessment of alcohol abusers entering treatment.

An improved understanding of the relationship between emotional regulation and alcohol use has profound clinical implications. Treatments could be designed to incorporate emotion regulation strategies. Indeed, in recent years therapies targeting emotion-based components have been applied in the treatment of substance use disorders

(SUD). The limited space available in this section precludes a thorough review of such therapies and their efficacy; however, some of these approaches are briefly described below.

Mindfulness-based approaches have been used to effectively treat a wide-range of problems such as chronic pain (Kabat-Zinn, 1990), anxiety disorders (Roemer & Orsillo, 2003), and depression and its relapse (Segal, Williams, & Teasdale, 2002). More recently, mindfulness-based approaches have been specifically adapted for use with SUD (Leigh, Bowen, & Marlatt, 2005). Mindfulness-based approaches can be described as the non-judgemental acceptance and awareness of experiences as they arise in the moment (Leigh et al.). This approach has particular relevance to SUD, in that it enables individuals to accept compulsive thought patterns and emotions that precipitate substance use as impermanent events that do not require action. Bowen et al. (2006) reported a study that used Vipassana meditation to treat incarcerated inmates. They found that this approach was effective in reducing a range of SUD (i.e., alcohol, marijuana, and crack cocaine use) on release from prison compared to those who underwent treatment as usual (TAU).

There are encouraging findings from two preliminary studies using a modified version acceptance and commitment therapy (ACT; Hayes, 2004), which also includes aspects of mindfulness techniques, to specifically treat SUD. This therapeutic approach targets the acceptance of emotional experiences rather than experiential avoidance of them. Hayes, et al. (2004) conducted a study comparing the outcomes of a TAU group, a 16-week of intensive ACT group, and a intensive twelve-step facilitation therapy group (ITSF)—an approach similar to that of Narcotics Anonymous—with poly-substance abusing methadone maintained opiate addicts. They reported significant improvements over TAU, but outcomes were only equivalent to ITSF. Twohig, Shoenberger, and Hayes (2007) investigated a modified approach of eight sessions of acceptance and commitment

therapy (ACT; Hayes, 2004) for the treatment of marijuana dependence in just three adults. Amongst the core components was an attempt to teach individuals to more fully explore their emotions in the moment. A three-month follow-up analysis showed two of the three participants made favourable outcomes.

A further technique that includes acceptance- and mindfulness-based approaches and specific emotion regulation techniques is dialectical behaviour therapy (DBT; Linehan, 1993). DBT also draws heavily on the CBT approach. This treatment, which was developed specifically to treat those diagnosed with borderline personality disorder (BPD), has more recently been modified to treat those with BPD co-morbid with SUD (McMain, Sayrs, Dimeff, & Linehan, 2007). This adaptation was largely as a result of the high co-morbidity rates of SUD with BPD (e.g., ~67%; van den Bosch, Verheul, Schippers, & van den Brink, 2002), rather than as a development for SUD in isolation. It should be noted, nevertheless, that emotional dysregulation is a common underlying factor in both clinical groups (i.e., BPD and SUD).

To date there have been four randomized controlled trials of DBT for people diagnosed with BPD co-morbid with SUD (Linehan et al., 1999; Linehan et al., 2002; McMain, et al., 2004; Verheul, et al., 2003) and no studies for this approach with SUD in isolation. The use of DBT to treat BPD and SUD has been encouraging in terms of treatment retention and outcomes. Linehan et al. (1999) found that DBT was more effective than TAU and Linehan et al. (2002) found that DBT was more effective than an intensive twelve-step facilitation group at an eight-month follow-up—in addition, the DBT group had significantly better retention-to-treatment rates. On a variety of outcomes, including drug use, Verheul et al. and McMain et al. showed DBT was superior to TAU.

This thesis has supported the theoretical implication that alcohol is often used as a means of enhancing emotion regulation strategies. At times this might be an

unproblematic way of managing emotional states, but it can often be a maladaptive means of doing so. Potentially, the use of alcohol to enhance emotion regulation strategies might be a precursor to harmful alcohol use, especially at times of extreme stress. A treatment approach that focuses on providing the skills to effectively regulate emotional states might provide the means of preventing problematic alcohol use, particularly at stressful times. DBT is an approach that incorporates emotion regulation strategies, acceptance- and mindfulness-based techniques, in addition to CBT principles. However, DBT might be considered an overly intensive stand-alone therapy for alcohol or SUD: as one anonymous British DBT trainer and practitioner put it "Using DBT to treat disorders other than BPD is like using a sledge hammer to crack a nut!"

Based on the evidence presented above, I would propose a treatment that would draw heavily from DBT. It would (a) investigate motives for drinking and examine this pattern in relation to emotion regulation strategies, (b) provide the skill-based approach to understanding emotions (based on DBT principles), (c) incorporate mindfulness- and acceptance-based strategies for managing and tolerating aversive emotional states, and (d) examine motivational deficits in goal pursuits with an emphasis on SMC techniques. The approach might be further enhanced using additional valid approaches (e.g., CBT and relapse prevention).

In conclusion, this thesis has assessed the relationship between people's use of alcohol, their emotion regulation strategies, and their goal patterns. Researchers and clinicians are beginning to apply acceptance- and mindfulness-based approaches to the treatment of SUD. It was argued that such approaches have utility in the treatment of alcohol disorders because of the link between emotion regulation and alcohol use. It was also argued that the exact relationship between drinking motives and emotion regulation is

not yet clearly been investigated. Elucidation of these relationships might further enhance the understanding and treatment of alcohol disorders.

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APPENDIX A – Consent Form & Information Sheet

APPENDIX B – Debrief Sheet

Ffurflen Wybodaeth/ Gydsynio

Gwerthusiad o Uchelgeisiau a Phryderon mewn Bywyd, yng nghyswllt Defnydd Alcohol

Dylai'r wybodaeth isod fod yn gymorth ichi benderfynu a ydych yn dymuno cymryd rhan yn yr astudiaeth ymchwil uchod neu beidio. Cymerwch eich amser i ddarllen y ddalen hon a theimlwch yn rhydd i ofyn cwestiynau ar unrhyw adeg.

Pwy sy'n cynnal yr astudiaeth?
Dr. Lee Hogan, myfyriwr seicoleg glinigol yn yr Ysgol Seicoleg, Prifysgol Bangor, sy'n cynnal yr astudiaeth, dan arolygiaeth yr Athro Miles Cox.

Amcanion yr astudiaeth
Rydym yn archwilio'r cysylltiad a geir rhwng arferion pobl o ran yfed, y modd y maent yn rheoli eu hemosiynau, a'r uchelgeisiau a'r pryderon sydd ganddynt mewn bywyd. Os cymerwch ran yn yr astudiaeth, byddwn yn gofyn cwestiynau ichi ynglŷn â'ch patrymau yfed a'r effeithiau y mae alcohol yn eu cael arnoch. Gofynnir ichi ddisgrifio sut y byddwch yn rheoli ar eich teimladau, a disgrifio'r uchelgeisiau sydd gennych mewn bywyd yr union adeg hon, gan roi marc i'r rhain yn ôl gwahanol feini prawf. Efallai y bydd canlyniadau'r astudiaeth hon yn gymorth inni ddeall yn well y cysylltiadau a geir rhwng uchelgeisiau pobl, eu pryderon, eu teimladau, a'u defnydd ar alcohol.

Beth sy'n digwydd os cymeraf ran?
Mae'r astudiaeth yn syml. Gofynnir ichi lenwi cyfres o holiaduron ynglŷn â'r agweddau isod: (a) eich patrymau yfed ers 6 wythnos a chanlyniadau hyn yng nghyswllt alcohol, (b) eich uchelgeisiau a'ch gobeithion mewn bywyd, a (c) y graddau y mae eich teimladau yn effeithio arnoch. Byddwn wedyn yn cysylltu â chi ymhen 6 wythnos, gan ofyn ichi lenwi'r un holiaduron unwaith eto. Bydd y'holl wybodaeth a rowch yn ddi-enw: byddwn yn dynodi rhif ichi, ac yn codio'r holiaduron y byddwch yn eu llenwi yn ôl eich rhif. Nid yw'r holiaduron hyn ar gael ond yn Saesneg; ni chymerant fwy nag awr i'w cwblhau. Am gymryd rhan yn yr astudiaeth, byddwch yn derbyn dau gredyd cwrs am y sesiwn gyntaf a dau gredyd cwrs am yr ail.

Pwyntiau Ychwanegol
Mae cymryd rhan yn yr astudiaeth yn llwyr wirfoddol: os penderfynwch beidio â chymryd rhan, ni chewch unrhyw gosb. Os byddwch yn cymryd rhan, ond wedyn yn teimlo nad ydych mwyach am gwblhau'r astudiaeth, mae croeso ichi dynnu'n ôl heb gael cosb. Os byddwch yn dymuno tynnu'n ôl, gellwch ofyn am ddinistrio'r wybodaeth a gesglir arnoch hyd at yr adeg honno. Ni chewch gosb am beidio ag ateb cwestiynau y penderfynwch nad ydych yn dymuno eu hateb. Os hoffech dderbyn adborth ar yr astudiaeth, rhowch ✓ yn y blwch isod ac ysgrifennwch eich cyfeiriad e-bost ar y llinell briodol.

Hoffwn dderbyn adborth ar yr astudiaeth ..... ☐ Cyfeiriad E-bost: _____

Cwynion
Os oes gennych unrhyw gŵynion ynglŷn â'r modd y gwneir yr ymchwil, dylech eu cyfeirio at yr Athro O. Turnbull, Pennaeth yr Ysgol, Ysgol Seicoleg, Prifysgol Bangor, Gwynedd, LL57 2DG.

Cydsyniad
Cytunaf i gymryd rhan yn yr astudiaeth hon. Rwyf wedi cael y ffurflen hon ac wedi cael cyfle i'w darllen.

Llofnod: _____

Dyddiad _____

Llofnod yr Ymchwilydd: _____

Participant Debriefing Form

An Evaluation of Aspirations and Concerns in Life Inventory and Alcohol Use

The purpose of this study is twofold: first, we are trying to evaluate a newly developed questionnaire to measure people's concerns and aspirations in life, and second, we are trying to understand the relationship between drinking patterns, concerns and aspirations in life, and the ways in which people manage their emotions.

People have a variety of concerns and aspirations in life. Previous research has established that the satisfaction that people derive from their goals is related to their alcohol use. We devised a very brief questionnaire to measure the structure of a person's motivation to obtain these goals. We aim to explore the relationship between this measure and alcohol consumption.

People have a variety of reasons for drinking alcohol. For instance, some people drink alcohol to help them celebrate; others might drink to help them socialise. Alcohol is often used as a means to regulate emotions. For example, some people might drink alcohol to help them alleviate stressful times. We aim to explore the relationship between the way people regulate their emotions, their alcohol consumption, and how they pursue their goals in life.

Analysis of the data from this study will allow us to explore the relationships described above. We expect that the results will enable us to better understand why people drink alcohol. After we have analysed the data, we will be happy to send you a summary of the results, if you like.

Thank you very much for your participation in this study.

If this study has raised any concerns for you about your drinking, the following may be useful sources of information and advice:

The Alcohol Concern website http://www.alcoholconcern.org.uk/

CAIS (A locally based alcohol information service) 08705 134902

Community Drug and Alcohol Services

Conwy Area: 01492 860926.
Gwynedd Area: 01248 351829.
Rhyl Area: 01745 338868.
Wrexham Area: 01978 261125.

Ffurflen Ôl-Astudiaeth ar gyfer Cyfranogwyr

Gwerthusiad o Uchelgeisiau a Phryderon mewn Bywyd, yng nghyswllt Defnydd Alcohol

Mae pwrpas yr astudiaeth yn ddeublyg: yn gyntaf, rydym yn ceisio gwerthuso holiadur a ddatblygwyd o'r newydd i fesur pryderon ac uchelgeisiau pobl mewn bywyd, ac yn ail, rydym yn ceisio deall y berthynas a geir rhwng patrymau yfed, pryderon ac uchelgeisiau mewn bywyd, a'r ffyrdd y mae pobl yn rheoli eu hemosiynau.

Mae gan bobl amrywiaeth o bryderon ac uchelgeisiau mewn bywyd. Mae ymchwil flaenorol wedi canfod bod y boddhad a gaiff pobl o'u huchelgeisiau yn gysylltiedig â'u defnydd ar alcohol. Rydym wedi llunio holiadur byr iawn i fesur ffurf cymhelliant rhywun i wireddu'r uchelgeisiau hyn. Rydym yn anelu at gluro'r cysylltiad a geir rhwng y mesur hwn a defnydd ar alcohol.

Mae gan bobl amryw o resymau dros yfed alcohol. Er enghraifft, bydd rhai pobl yn yfed alcohol i'w helpu i ddathlu achlysur; gall eraill yfed fel cymorth i gymdeithasu. Yn aml, defnyddir alcohol fel dull o reoli ar emosiynau. Er enghraifft, efallai y bydd rhai pobl yn yfed alcohol fel cymorth ar adegau straenus. Rydym yn anelu at archwilio'r cysylltiad a geir rhwng y ffordd y mae pobl yn rheoli ar eu teimladau, eu defnydd ar alcohol, a'r modd y ceisiant wireddu eu huchelgeisiau mewn bywyd.

Bydd dadansoddi'r data a geir o'r astudiaeth hon yn fodd inni archwilio'r cysylltiadau uchod. Rydym yn disgwyl y bydd y canlyniadau yn rhoi gwell dealltwriaeth inni ynglŷn â'r rheswm fod pobl yn yfed alcohol. Ar ôl inni ddadansoddi'r data, byddwn yn falch o anfon crynodeb atoch o'r canlyniadau.

Diolch yn fawr iawn am gymryd rhan yn yr astudiaeth hon.

Os ydych yn bryderus ynglŷn â'ch patrymau yfed, yn sgil yr astudiaeth hon, efallai y bydd y ffynonellau isod o wybodaeth a chyngor o ddefnydd ichi:

Gwefan Cyngor Alcohol http://www.alcoholconcern.org.uk/

CAIS (Gwasanaeth lleol ar wybodaeth alcohol) 08705 134902

Gwasanaethau Cymunedol Cyffuriau ac Alcohol
Rhanbarth Conwy: 01492 860926.
Rhanbarth Gwynedd: 01248 351829.
Rhanbarth y Rhyl: 01745 338868.
Rhanbarth Wrecsam: 01978 261125.

APPENDIX C – Drinking Motives Questionnaire

Participant No._____

Motives Questionnaire

The following questionnaire lists a number of reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for the following reasons? Please tick the answer of your choice to each question. **Your answers are completely private and confidential**

		almost never /never	some of the time	half of the time	most of the time	almost always /always
1	To forget your worries.					
2	Because your friends pressure you to drink.					
3	Because it helps you to enjoy a party.					
4	Because it helps you when you feel depressed or nervous.					
5	To be sociable					
6	To cheer up when you are in a bad mood.					
7	Because you like the feeling.					
8	So that others won't kid you about *not* drinking.					
9	Because it's exciting					
10	To get high.					
11	Because it makes social gatherings more fun.					
12	To fit in with a group you like.					
13	Because it gives you a pleasant feeling.					
14	Because it improves parties and celebrations.					
15	Because you feel more self-confident and sure of yourself.					
16	To celebrate a special occasion with friends.					
17	To forget about your problems.					
18	Because it's fun.					
19	To be liked.					
20	So you won't feel left out.					

APPENDIX D – Typical and Atypical Drinking Diary

Typical and Atypical Drinking Diary (TADD)

Participant Number:_____ Date_____

Participant Age:_____ Participant Weight:_____

Gender (please circle) Male Female

* * * * * * * * * * * * * * * * * * *

1. Do you still drink alcohol? (please circle)

Yes No

When did you stop drinking?_____(date)
(Please continue below with what you used to drink)

2. Please select which beverage(s) you drank in the SIX WEEKS, and the size of the container you normally use when drinking the beverage(s), by ticking in the appropriate box.

Beverage	Alcohol content	Usual container size									
							Bottle				
		single	double	glass	can	pint	330 ml	750 ml	1 litre	2 litre	3 litre
Alcopops	5%	----	----	----	----	----		----	----	----	----
Beer (normal)	3.7%	----	----	----				----			
Beer (strong)	5%	----	----	----				----			
Beer (super)	9%	----	----	----				----			
Cider	7.5%	----	----	----							
Wine (white)	9-13%*	----	----		----	----				----	----
Wine (red)	9-13%†	----	----		----	----					----
Fortified wine	17%	----	----		----	----	----		----	----	----
Spirits	40%			----	----	----	----			----	----
Other (please state)											

* If known, please state the exact alcohol content
† If known, please state the exact alcohol content

Some people drink regular amounts of alcohol each week whereas others do not. Below are two weekly diaries to record your drinking—one for weeks when you drank typical amounts and one for weeks when you drank greater or lesser amounts.

- Please record your TYPICAL weekly amount (in the PAST SIX WEEKS) in the first diary.

- If you drank *differently (e.g., more or less)* than your *typical* weekly amount (in the PAST SIX WEEKS), please record this ATYPICAL weekly amount in the second diary.

3. Please estimate what you drank in a TYPICAL week in the past six weeks. For each day, state the type and amount of beverage consumed. For each day, state the time the drinking session began and the time it finished. If you had two drinking sessions in one day, state the amount consumed and the length of each session. For an example of a drink diary, see page 4.

Diary 1. Typical Week

Day	Beverage	%	Total amount drunk	Start time	Finish time
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

4. How many weeks in the past six weeks have you drunk this TYPICAL amount?
(please tick in the appropriate box)

0	1	2	3	4	5	6

5. Please estimate what you drank in an ATYPICAL week in the past six weeks. For each day, state the type and amount of beverage consumed. For each day, state the time the drinking session began and the time it finished. If you had two drinking sessions in one day, state the amount consumed and the length of each session. For an example of a drink diary, see page 4.

Diary 2. Atypical Week

Day	Beverage	%	Total amount drunk	Start time	Finish time
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

6. How many weeks in the past six weeks have you drunk this ATYPICAL amount? (please tick in the appropriate box)

0	1	2	3	4	5	6

An Example of a Typical and Atypical Drinking Diary

Diary 1 Typical Week					
Day	Beverage	%	Total amount drunk	Start time	Finish time
Monday	Beer	3.7	4 pints	8pm	11pm
Tuesday	Wine	12	1 bottle	7pm	10pm
Wednesday					
Thursday					
Friday	Beer	3.7	5 pints	6.30pm	12.30am
	Spirits	40	2 doubles		
Saturday					
Sunday	Beer	3.7	4 pints	12pm	3pm

How many weeks in the past six weeks have you drunk this TYPICAL amount?
(please tick in the appropriate box)

0	1	2	3	4	5	6
				X		

Diary 2 ATYPICAL Week					
Day	Beverage	%	Total amount drunk	Start time	Finish time
Monday	Beer	3.7	5 pints	8pm	11pm
Tuesday	Wine	12	1 bottle	7pm	10pm
Wednesday					
Thursday					
Friday	Beer	3.7	5 pints	6.30pm	12.30am
	Spirits	40	2 doubles		
Saturday	Beer	5	4 cans	4pm	1am
	Beer	3.7	5 pints		
	Alcopops	5	2 bottles		
Sunday	Beer	3.7	4 pints	12pm	3pm
	Beer	5	4 cans	6pm	10pm

How many weeks in the past six weeks have you drunk this ATYPICAL amount?
(please tick in the appropriate box)

0	1	2	3	4	5	6
		X				

APPENDIX E – Rutgers Alcohol Problems Index

R.A.P.I.

Different things happen to people when they are drinking ALCOHOL, or as a result of their ALCOHOL use. Some of these things are listed below. Please indicate how many times each has happened to you during the last 6 WEEKS while you were drinking alcohol or as the result of your alcohol use. When marking your answers, use the following code.

How many times did the following things happen to you while you were drinking alcohol or because of your alcohol use during the last 6 WEEKS

Circle one item for each answer.	Never	1-2 times	3-5 times	6-10 times	More than 10 times
Not able to do your homework or study for a test.	0	1	2	3	4
Got into fights, acted bad, or did mean things.	0	1	2	3	4
Missed out in other things because you spent too much money on alcohol.	0	1	2	3	4
Went to work or school high or drunk.	0	1	2	3	4
Caused shame or embarrassment to someone.	0	1	2	3	4
Neglected your responsibilities.	0	1	2	3	4
Relatives avoided you.	0	1	2	3	4
Felt that you needed more alcohol than you used to use in order to get the same effect.	0	1	2	3	4
Tried to control your drinking by trying to drink only at certain times of day or certain places.	0	1	2	3	4
Had withdrawal symptoms, that is, felt sick because you stopped or cut down on drinking.	0	1	2	3	4
Noticed a change in your personality.	0	1	2	3	4
Felt that you had a problem with school.	0	1	2	3	4
Missed a day (or part of a day) of school or work.	0	1	2	3	4
Tried to cut down on drinking.	0	1	2	3	4
Suddenly found yourself in a place that you could not remember getting to.	0	1	2	3	4
Passed out or fainted suddenly.	0	1	2	3	4
Had a fight, argument, or bad feelings with a friend.	0	1	2	3	4

How many times did the following things happen to you while you were drinking alcohol or because of your <u>alcohol use during the last 6 WEEKS</u>

Circle one item for each answer.	Never	1-2 times	3-5 times	6-10 times	More than 10 times
Had a fight, argument, or bad feelings with a family member.	0	1	2	3	4
Kept drinking when you promised yourself not to.	0	1	2	3	4
Felt you were going crazy	0	1	2	3	4
Had a bad time	0	1	2	3	4
Felt physically or physiologically dependent on alcohol.	0	1	2	3	4
Was told by a friend or neighbour to stop or cut down drinking.	0	1	2	3	4

APPENDIX F – Positive Affect and Negative Affect Scale

The PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate number from the scale below. Indicate to what extent you have felt this way during the past few weeks.

1----------2----------3----------4----------5

very slightly or not at all | a little | moderately | quite a bit | extremely

1)	Interested	1	2	3	4	5
2)	Distressed	1	2	3	4	5
3)	Excited	1	2	3	4	5
4)	Upset	1	2	3	4	5
5)	Strong	1	2	3	4	5
6)	Guilty	1	2	3	4	5
7)	Scared	1	2	3	4	5
8)	Hostile	1	2	3	4	5
9)	Enthusiastic	1	2	3	4	5
10)	Proud	1	2	3	4	5
11)	Irritable	1	2	3	4	5
12)	Alert	1	2	3	4	5
13)	Ashamed	1	2	3	4	5
14)	Inspired	1	2	3	4	5
15)	Nervous	1	2	3	4	5
16)	Determined	1	2	3	4	5
17)	Attentive	1	2	3	4	5
18)	Jittery	1	2	3	4	5
19)	Active	1	2	3	4	5
20)	Afraid	1	2	3	4	5

APPENDIX G – Difficulties in Emotion Regulation Scale

Difficulties in Emotion Regulation Scale (DERS)

Please indicate how often the following statements apply to you by circling the appropriate number from the scale below:

1	2	3	4	5
almost never (0-10%)	sometimes (11-35%)	about half the time (36-65%)	most of the time (66-90%)	almost always (91-100%)

1)	I am clear about my feelings.	1	2	3	4	5
2)	I pay attention to how I feel.	1	2	3	4	5
3)	I experience my emotions as overwhelming and out of control.	1	2	3	4	5
4)	I have no idea how I am feeling.	1	2	3	4	5
5)	I have difficulty making sense out of my feelings.	1	2	3	4	5
6)	I am attentive to my feelings.	1	2	3	4	5
7)	I know exactly how I am feeling.	1	2	3	4	5
8)	I care about what I am feeling.	1	2	3	4	5
9)	I am confused about how I feel.	1	2	3	4	5
10)	When I'm upset, I acknowledge my emotions.	1	2	3	4	5
11)	When I'm upset, I become angry with myself for feeling that way.	1	2	3	4	5
12)	When I'm upset, I become embarrassed for feeling that way.	1	2	3	4	5
13)	When I'm upset, I have difficulty getting work done.	1	2	3	4	5
14)	When I'm upset, I become out of control.	1	2	3	4	5
15)	When I'm upset, I believe that I will remain that way for a long time.	1	2	3	4	5
16)	When I'm upset, I believe that I'll end up feeling very depressed.	1	2	3	4	5
17)	When I'm upset, I believe that my feelings are valid and important.	1	2	3	4	5
18)	When I'm upset, I have difficulty focusing on other things.	1	2	3	4	5

1----------2----------3----------4----------5						
almost never (0-10%)	sometimes (11-35%)	about half the time (36-65%)	most of the time (66-90%)		almost always (91-100%)	
19)	When I'm upset, I feel out of control.		1	2	3	4	5
20)	When I'm upset, I can still get things done.		1	2	3	4	5
21)	When I'm upset, I feel ashamed with myself for feeling that way.		1	2	3	4	5
22)	When I'm upset, I know that I can find a way to eventually feel better.		1	2	3	4	5
23)	When I'm upset, I feel like I am weak.		1	2	3	4	5
24)	When I'm upset, I feel like I can remain in control of my behaviors.		1	2	3	4	5
25)	When I'm upset, I feel guilty for feeling that way.		1	2	3	4	5
26)	When I'm upset, I have difficulty concentrating.		1	2	3	4	5
27)	When I'm upset, I have difficulty controlling my behaviors.		1	2	3	4	5
28)	When I'm upset, I believe that there is nothing I can do to make myself feel better.		1	2	3	4	5
29)	When I'm upset, I become irritated with myself for feeling that way.		1	2	3	4	5
30)	When I'm upset, I start to feel very bad about myself.		1	2	3	4	5
31)	When I'm upset, I believe that wallowing in it is all I can do.		1	2	3	4	5
32)	When I'm upset, I lose control over my behaviors.		1	2	3	4	5
33)	When I'm upset, I have difficulty thinking about anything else.		1	2	3	4	5
34)	When I'm upset, I take time to figure out what I'm really feeling.		1	2	3	4	5
35)	When I'm upset, it takes me a long time to feel better.		1	2	3	4	5
36)	When I'm upset, my emotions feel overwhelming.		1	2	3	4	5

APPENDIX H – Personal Concerns Inventory

APPENDIX I – Brief Aspirations and Concerns in Life Inventory

Participant number				**Date**	/	/	
Assessment stage *(tick one)*	**Time 1**		**Time 2**				

(For official use only)

BRIEF ASPIRATIONS AND CONCERNS in LIFE INVENTORY (BACLI)

General Instructions

Undoubtedly, you have aspirations and concerns in different areas of your life. Your aspirations and concerns in some areas of your life are probably more important to you than they are in other areas. You might spend a lot of time thinking about and trying to make things happen in certain areas of life, but not so much in other areas. Using the list of life areas in the box below, please take some time to consider the areas of your life in which are trying hardest to make things happen, or that you think about most often.

- **Education**
- **Friendships**
- **Finances**
- **Employment**
- **Self Changes**
- **Substance Use**
- **Home and Household Matters**
- **Intimate Relationships**
- **Family**
- **Health and Medical Matters**
- **Leisure and Recreation**
- **Spiritual Matters**

Before going to the ANSWER SHEETS in the pages that follow, please select the FOUR life areas that you think about most often.

Life Area 1	_____	Life Area 3	_____
Life Area 2	_____	Life Area 4	_____

Continue on the next page

Instructions (continued)

On the following **four** ANSWER SHEETS, please answer some questions about the four life areas that you selected on the previous page. Use one page for each of the four life areas. At the beginning of each page, you are asked to name one of the four life areas that you think about most often.

Please answer seven questions about each life area by circling one number (from **0 to 10)** for each question that best describes how you feel. "0" is for the least amount; "10" is for the greatest amount. Be sure to answer all questions and circle only one number for each question.

Continue on the next page

ANSWER SHEET 1

Please indicate your first life area_____

Please take some time to think about all of your aspirations and concerns in this life area. There might be things in this life area that are positive for you (e.g., things that you want to obtain or accomplish); other things might be negative (e.g., things that you are trying to prevent or avoid or get rid of). Let's call these things your goals.

Answer the following questions based on how OVERALL you perceive your goals in this life area.

How *important* is it for you to achieve your goals in this life area?

Importance 0 1 2 3 4 5 6 7 8 9 10

0 = not important at all 10 = totally important

How *committed* are you to achieve your goals in this life area?

Commitment 0 1 2 3 4 5 6 7 8 9 10

0 = not committed at all 10 = totally committed

Do you know *what to do* so that you can achieve your goals in this life area?

Knowledge 0 1 2 3 4 5 6 7 8 9 10

0 = do not know what to do 10 = totally know what to do

How much *control* do you feel you have over being able to achieve your goals in this life area?

Control 0 1 2 3 4 5 6 7 8 9 10

0 = no control at all 10 = total control

How *likely* is it that you will be able to achieve your goals in this life area?

Likelihood 0 1 2 3 4 5 6 7 8 9 10

0 = not likely at all 10 = totally likely

How much *joy* will you get if you are able to achieve your goals in this life area?

Joy 0 1 2 3 4 5 6 7 8 9 10

0 = no joy at all 10 = total joy

Sometimes we feel unhappy even if things do turn out the way we want. That is, sometimes outcomes that make us feel *good* also partly make us feel *bad*. To what extent would achieving your goals in this life area also make you feel *unhappy*?

Unhappy 0 1 2 3 4 5 6 7 8 9 10

0 = not unhappy at all 10 = totally unhappy

ANSWER SHEET 2

Please indicate your second life area_____

Please take some time to think about all of your aspirations and concerns in this life area. There might be things in this life area that are positive for you (e.g., things that you want to obtain or accomplish); other things might be negative (e.g., things that you are trying to prevent or avoid or get rid of). Let's call these things your goals.

Answer the following questions based on how OVERALL you perceive your goals in this life area.

How *important* is it for you to achieve your goals in this life area?

Importance 0 1 2 3 4 5 6 7 8 9 10

0 = not important at all 10 = totally important

How *committed* are you to achieve your goals in this life area?

Commitment 0 1 2 3 4 5 6 7 8 9 10

0 = not committed at all 10 = totally committed

Do you know *what to do* so that you can achieve your goals in this life area?

Knowledge 0 1 2 3 4 5 6 7 8 9 10

0 = do not know what to do 10 = totally know what to do

How much *control* do you feel you have over being able to achieve your goals in this life area?

Control 0 1 2 3 4 5 6 7 8 9 10

0 = no control at all 10 = total control

How *likely* is it that you will be able to achieve your goals in this life area?

Likelihood 0 1 2 3 4 5 6 7 8 9 10

0 = not likely at all 10 = totally likely

How much *joy* will you get if you are able to achieve your goals in this life area?

Joy 0 1 2 3 4 5 6 7 8 9 10

0 = no joy at all 10 = total joy

Sometimes we feel unhappy even if things do turn out the way we want. That is, sometimes outcomes that make us feel *good* also partly make us feel *bad*. To what extent would achieving your goals in this life area also make you feel *unhappy*?

Unhappy 0 1 2 3 4 5 6 7 8 9 10

0 = not unhappy at all 10 = totally unhappy

ANSWER SHEET 3

Please indicate your third life area_____

Please take some time to think about all of your aspirations and concerns in this life area. There might be things in this life area that are positive for you (e.g., things that you want to obtain or accomplish); other things might be negative (e.g., things that you are trying to prevent or avoid or get rid of). Let's call these things your goals.

Answer the following questions based on how OVERALL you perceive your goals in this life area.

How *important* is it for you to achieve your goals in this life area?

Importance 0 1 2 3 4 5 6 7 8 9 10

0 = not important at all 10 = totally important

How *committed* are you to achieve your goals in this life area?

Commitment 0 1 2 3 4 5 6 7 8 9 10

0 = not committed at all 10 = totally committed

Do you know *what to do* so that you can achieve your goals in this life area?

Knowledge 0 1 2 3 4 5 6 7 8 9 10

0 = do not know what to do 10 = totally know what to do

How much *control* do you feel you have over being able to achieve your goals in this life area?

Control 0 1 2 3 4 5 6 7 8 9 10

0 = no control at all 10 = total control

How *likely* is it that you will be able to achieve your goals in this life area?

Likelihood 0 1 2 3 4 5 6 7 8 9 10

0 = not likely at all 10 = totally likely

How much *joy* will you get if you are able to achieve your goals in this life area?

Joy 0 1 2 3 4 5 6 7 8 9 10

0 = no joy at all 10 = total joy

Sometimes we feel unhappy even if things do turn out the way we want. That is, sometimes outcomes that make us feel *good* also partly make us feel *bad*. To what extent would achieving your goals in this life area also make you feel *unhappy*?

Unhappy 0 1 2 3 4 5 6 7 8 9 10

0 = not unhappy at all 10 = totally unhappy

ANSWER SHEET 4

Please indicate your last life area_____

Please take some time to think about all of your aspirations and concerns in this life area. There might be things in this life area that are positive for you (e.g., things that you want to obtain or accomplish); other things might be negative (e.g., things that you are trying to prevent or avoid or get rid of). Let's call these things your goals.

Answer the following questions based on how OVERALL you perceive your goals in this life area.

How *important* is it for you to achieve your goals in this life area?

Importance 0 1 2 3 4 5 6 7 8 9 10

0 = not important at all 10 = totally important

How *committed* are you to achieve your goals in this life area?

Commitment 0 1 2 3 4 5 6 7 8 9 10

0 = not committed at all 10 = totally committed

Do you know *what to do* so that you can achieve your goals in this life area?

Knowledge 0 1 2 3 4 5 6 7 8 9 10

0 = do not know what to do 10 = totally know what to do

How much *control* do you feel you have over being able to achieve your goals in this life area?

Control 0 1 2 3 4 5 6 7 8 9 10

0 = no control at all 10 = total control

How *likely* is it that you will be able to achieve your goals in this life area?

Likelihood 0 1 2 3 4 5 6 7 8 9 10

0 = not likely at all 10 = totally likely

How much *joy* will you get if you are able to achieve your goals in this life area?

Joy 0 1 2 3 4 5 6 7 8 9 10

0 = no joy at all 10 = total joy

Sometimes we feel unhappy even if things do turn out the way we want. That is, sometimes outcomes that make us feel *good* also partly make us feel *bad*. To what extent would achieving your goals in this life area also make you feel *unhappy*?

Unhappy 0 1 2 3 4 5 6 7 8 9 10

0 = not unhappy at all 10 = totally unhappy

APPENDIX J – Word Counts

	Words
Thesis Summary	209
Ethics Proposal	2995
Reflections Section	1637
Review Paper	4700
Empirical Paper	4993
Extended Discussion	2353
Total	16887

Review Paper References and Tables	1637
Empirical Paper References and Tables	1746
Extended Discussion Paper References	933
Appendix A	498
Appendix B	317
Appendix C	214
Appendix D	661
Appendix E	475
Appendix F	206
Appendix G	648
Appendix H	~2400
Appendix I	1704
Total	11439