

**SELF- REGULATION AND STRESS MANAGEMENT
IN UNDERGRADUATE STUDENTS**

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**Mini-dissertation (article format) submitted in partial fulfilment of the
requirements for the degree Master of Arts in Clinical Psychology at the North-
West University (Potchefstroom Campus)**

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My Lord Jesus Christ for giving me the strength and energy to complete that which I had started, and always being there to lift me up when I fell and struggled.

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Tony Lanner, thank you for editing my manuscript.

2. SOLEMN DECLARATION



NORTH-WEST UNIVERSITY
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SOLEMN DECLARATION

1 Solemn declaration by student

I _____ declare herewith that the mini-dissertation/dissertation/thesis entitled,

_____ which i herewith submit to the North-West University as completion/partial completion of the requirements set for the _____ degree, is my own work and has not already been submitted to any other university.

I understand and accept that the copies that are submitted for examination are the property of the University.

Signature of candidate _____ University-number _____

Signed at _____ this _____ day of _____ 2007.

Declared before me on this _____ day of _____ 2007

Commissioner of Oaths: _____

2 Declaration by supervisor/promotor

The undersigned declares:

- 2.1 that the candidate attended an approved module of study for the relevant qualification and that the work for the course has been completed or that work approved by the Senate has been done
- 2.2 the candidate is hereby granted permission to submit his/her mini-dissertation/dissertation or thesis
- 2.3 that registration/change of the title has been approved;
- 2.4 that the appointment/change of examiners has been finalised and
- 2.5 that all the procedures have been followed according to the Manual for post graduate studies.

Signature of Supervisor: _____ Date: _____

3. SUMMARY

SELF-REGULATION AND STRESS MANAGEMENT IN UNDERGRADUATE STUDENTS

Key words: Adjustment; goal management; mindfulness; self-regulation; self-reflection; stress management; undergraduate students.

The aim of this study was to explore qualitative differences in the self-regulation of stress management between students experiencing high stress levels and those experiencing low stress levels. Undergraduate students of the Potchefstroom campus of the North West University completed the 14-item Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983) to obtain the two comparative student groups (N=25). A semi-structured questionnaire based on the phases of self-regulation namely mindfulness; goal management; adjustment and self-reflection was then administered. Directed content analysis (Hsieh & Shannon, 2005) was applied with open, axial and selective coding. Although a number of similarities were found between the two groups, the general indication is that participants with lower stress are better self-regulators. They are slightly more mindful regarding perceived causes of stress, have more intrinsically motivated goals, have higher self-efficacy beliefs, more often use physical activity and external monitoring in executing their stress goals, judge themselves more positively, and reflect more positively on the self-regulation process. The importance of effective self-regulation in stress management has thus been confirmed for this group of participants. The study's unique contribution, however, lies in the fact that it generated qualitative insight into the perceptions and experiences of regulating stress in undergraduate students. Future research may include statistical analyses, more diverse populations, and larger sample sizes.

4. OPSOMMING

SELF-REGULERING EN STRESHANTERING IN VOORGRAADSE STUDENTE

Sleutelwoorde: Aanpassing; doelwitbestuur; *mindfulness*¹; self-regulering; self-refleksie; streshantering; voorgraadse studente.

Die doel van hierdie studie was om kwalitatiewe verskille in term van die self-regulering van stres tussen studente wat hoë vlakke van stres en studente wat lae vlakke van stres ervaar, te verken. Voorgraadse studente aan die Potchefstroomkampus van die Noordwes-Universiteit het die 14-item Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1983) voltooi om die twee vergelykende groepe (N=25) te verkry. Hierna is 'n semi-gestruktureerde vraelys, gebaseer op die fases van self-regulering, naamlik *mindfulness*, doelwitbestuur, aanpassing en self-refleksie, afgeneem. Gerigte inhoudsanalise (Hsieh & Shannon, 2005) met oop-, as- en selektiewe kodering is toegepas. Alhoewel 'n aantal ooreenkomste tussen die groepe gevind is, is die algemene aanduiding dat deelnemers met laer stres beter self-reguleerders is. Hulle is effens meer *mindful* met betrekking tot waargenome oorsake van stres, het meer intrinsiek-gemotiveerde doelwitte, hoër selfeffektiewe oortuigings, gebruik fisiese aktiwiteite asook eksterne monitering meer dikwels in die uitvoer van hulle stresdoelwitte, beoordeel hulleself meer positief, en reflekteer meer positief op die selfreguleringsproses. Die belangrikheid van effektiewe self-regulering in streshantering is dus vir hierdie groep deelnemers bevestig. Die studie se unieke bydrae lê egter daarin dat dit kwalitatiewe insig in die persepsies en belewenisse van stresregulering onder studente gegenereer het. Verdere navorsing behoort statistiese analises, meer diverse populasies en groter steekproewe in te sluit.

¹ Daar is tans geen erkende Afrikaanse term vir *mindfulness* nie

5. PREFACE

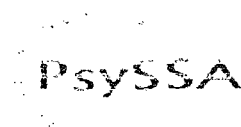
5.1 Article format

The article format as described by General Regulation A13.7 of the North-West University was chosen, for the purpose of this mini-dissertation, which is part of the requirements for a professional master's degree.

5.2 Selected journal

The target journal for submission of the current manuscript is the *South African Journal of Psychology*. Author instructions appear on the next page.

6. INSTRUCTIONS TO AUTHORS: South African Journal of Psychology



South African Journal of Psychology

Instructions to authors

Submitting a manuscript

SAJP is a peer-reviewed journal publishing empirical, theoretical and review articles on all aspects of psychology. Articles may focus on South African, African or international issues. Manuscripts to be considered for publication should be e-mailed to sajp@unisa.ac.za. Include a covering letter with your postal address, email address, and phone number. The covering letter should indicate that the manuscript has not been published elsewhere and is not under consideration for publication in another journal. An acknowledgement of receipt will be e-mailed to the author within a few days and the manuscript will be sent for review by three independent reviewers. Incorrectly structured or formatted manuscripts will not be accepted into the review process.

Manuscript structure

- The manuscript should be no longer than 30 pages and no shorter than 10 pages.
- **First page:** The full title of the manuscript, the name(s) of the author(s) together with their affiliations, and the name, address, and e-mail address of the author to whom correspondence should be sent.
- **Second page:** The abstract, formatted as a single paragraph, and no longer than 300 words. A list of at least six key words should be provided below the abstract, with semi-colons between words.
- **Subsequent pages:** The text of the article. The introduction to the article does not require a heading.
- **Concluding pages:** A reference list, followed by tables and figures (if any). Each table or figure should be on a separate page. Tables and figures should be numbered consecutively and their appropriate positions in the text indicated. Each table or figure should be provided with a title (e.g., Figure 1. Frequency distribution of critical incidents). The title should be placed at the top for tables and at the bottom for figures.

Manuscript format

- The manuscript should be an MS Word document in 12-point Times Roman font with 1.5 line spacing. There should be no font changes, margin changes, hanging indents, or other unnecessarily complex formatting codes.
- American Psychological Association (APA) style guidelines and referencing format should be adhered to.
- Headings should start at the left margin, and should not be numbered. All headings should be in **bold**. Main headings should be in **CAPITAL LETTERS**.
- A line should be left open between paragraphs. The first line of a paragraph should not be indented.
- Use indents only for block quotes.
- In the reference list, a line should be left open above each reference. Do not use indents or hanging indents in the reference list.

Language and punctuation

Manuscripts should be written in English. As the SAJP does not employ a full-time or dedicated language editor, authors are requested to send their manuscripts to an external language specialist for language editing before submission.

7. MANUSCRIPT

**SELF-REGULATION AND STRESS MANAGEMENT
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Abstract:

The aim of this study was to explore qualitative differences in the self-regulation of stress management between students experiencing high stress levels and students experiencing low stress levels. Stress and self-regulation data from 25 undergraduate university students were subjected to directed content analysis. A number of similarities and differences were found between the two groups, with the general indication that participants with lower stress levels are better self-regulators. The main implication is that the importance of effective self-regulation in stress management has been confirmed for this group of undergraduate students. The study's unique contribution, however, lies in the fact that it generated qualitative insight into the perceptions and experiences of regulating stress in undergraduate students. Future research may include statistical analyses, more diverse populations and a larger sample size.

Key words: Adjustment; goal management; mindfulness; self-regulation; self-reflection; stress management; undergraduate students.

SELF-REGULATION AND STRESS MANAGEMENT IN UNDERGRADUATE STUDENTS

Stress is defined by Colman (2001, p. 711) as “A psychological and physical strain or tension generated by physical, emotional, social, economic, or occupational circumstances, events or experiences that are difficult to manage or endure”. Sue, Sue, and Sue (2000, p.192) emphasize the role of the stressor in their definition of stress as “....an internal response to a stressor, while the stressor is an external event or situation that places a physical or psychological demand on a person”. Lazarus and Folkman (1984, p. 19) emphasize the individual’s appraisal of the stressor when they define stress as “...internal or external demands that are perceived as exceeding or taxing one’s resources”.

Numerous researchers indicate that university students are especially prone to stress. Previous South African studies on the causes of stress among students focused on academic aspects such as time constraints and academic workload; financial difficulties due to insufficient funds; social aspects including problematic interpersonal relations with parents and friends (Baloyi 1994; Marais & Kirsten, 1999), and stress related variables such as coping (Baloyi 1994), psychological symptoms, social support, health behaviour (Peltzer, 2004), academic achievement (Nelson, Dell’Oliver, Koch, & Buckles, 2001), and newcomers’ orientation to an academic institution (Roos, Potgieter, & Wissing, 2004). These stressors relate to those identified in international studies (Nelson et al 2001). Stress, not managed effectively, impacts on students’ health in a negative way, the result of which could lead to higher stress levels, dropout and burnout, as well as depressive symptoms that could have a detrimental effect on various health behaviours, such as unprotected sex, abnormal sleeping hours, alcohol use and diet (Peltzer, 2004).

Stress interventions in student populations have been approached from different perspectives. Lephuong, Linden, and Young (2004) refer to stress management programs that make use of cognitive behavioural therapy, coping skills training or an approach that emphasizes relaxation, imagery and meditation. Du Toit (1996) devised a short- term stress management programme specifically for students, which includes study skills, relaxation and imagery techniques, based on the stress inoculation programme of Cameron and Meichenbaum (1982), and Meichenbaum (1986). Another

student programme (Nienaber & Van Den Berg, 1991) focused on problem solving techniques with the incorporation of elements such as a healthy lifestyle, goal setting and time management. The importance of coping strategies for students such as religion, humour, social and emotional support is emphasized by Nelson et al., (2001). Although existing student stress management programmes make an important contribution, they lack a focus on stress management as a self-regulatory process.

According to Vancouver and Day (2005), self-regulation refers to the processes involved in attaining and maintaining goals, whereas Maes and Karoly (2005) define it as a process of human behaviour which is systematic, involving self-endorsed personal goals that guide behaviour towards the achievement of set goals. Self-regulation can thus be compared to Bandura's view (2001) of human beings as agents, as it enables people to play a part in their self-development, adaptation, and self-renewal with changing times. Although there exist many different theories and models of self-regulation, common key self-regulatory processes, which will be used in this study, are goal management, including goal setting and goal execution; adjustment; and self-reflection (Vancouver & Day, 2005; Maes & Karoly, 2005).

Although a number of different factors and processes influence the nature of self-regulation, two of these, mindfulness and self-efficacy, are of particular importance. According to Brown and Ryan (2003) mindfulness is considered to be an enhanced, open or receptive attention to and awareness of current experience or present reality. It is important for effective self-regulation because an open awareness helps facilitate the choice of behaviours that are consistent with one's needs, values, and interests. Self-efficacy is the belief in one's ability to manage unusual tasks and to cope with difficulties arising from various encounters that are deemed to be challenging (Luszczynska, Gultierrez-Doña & Schwarzer, 2005). Self-efficacy is particularly important to self-regulation because it affects the level and type of goal individuals adopt, which in turn influences performance (De Ridder & De Wit, 2006).

Research indicates that effective self-regulation can protect against the detrimental effects of stress, by enabling one to take suitable action to counter the effects of stress (Bauman, Kaschel & Kuhl, 2005), however individual differences affect the efficiency of self-regulation. Action-orientation and state-orientation are personality dispositions, which influence the manner in which adverse conditions are managed. Action-

orientated individuals display characteristics such as self-efficacy, initiative, self-determination, emotional control, self relaxation, and positive self motivation, while state-orientated individuals are susceptible to intrusions, passive avoidance, rumination, alienation, and procrastination (Beckman & Kellmann, 2004). Thus, action orientated individuals self-regulate efficiently as they discontinue behaviour when the context indicates the futility thereof, whereas state orientated individuals often fail to disengage from futile behaviour. A further example is that persons with general self-efficacy and high self esteem self-regulate more efficiently due to the belief in their competence in dealing with all kinds of demands (Luszczynska et al, 2005). Yet another example would be that self-regulative aspects like re-orientation and re-interpretation have a buffering effect in that they assist in neutralizing interpretations of self-threatening negative events (Rothermund & Meininger 2004).

From the literature it is thus evident that self-regulation is an important component of stress management, which, however, is not well researched and understood within a South-African university student context. Another limitation is the lack of a qualitative approach and therefore an insider's perspective of the self-regulation process. In other words, to what extent are students mindful regarding the self-regulation of stress? How do students experience the self-regulation of stress? How efficient do they judge themselves to be? And, finally, are there differences between students with high and students with low stress regarding these experiences? Answers to these could contribute to the awareness of the importance of SR in stress management of students as well as the development of more comprehensive, efficient stress management programs.

The general aim of this study is thus to explore qualitative differences in the self-regulation between students who experience high stress levels and students who experience low stress levels. Specific aims are to explore how the two groups differ in terms of (i) stress-related mindfulness; (ii) stress-related goal management, including goal setting and goal execution; (iii) stress-related adjustment strategies; and (iv) stress-related self-reflection.

METHOD

A comparative survey design with quantitative and qualitative methods of analysis was utilised.

Participants

An availability sample of mainly white, Afrikaans and English speaking undergraduate students (n=30) from the Potchefstroom campus of the North West University, took part in the study. Their ages ranged between 20 and 37, with a mean of 22.3 years.

Measuring Instruments

The Global Measure of Perceived Stress (PSS) was completed by the participants in order to obtain the two comparative student groups. The PSS is a 14-item scale that “measures the degree to which situations in one’s life are appraised as stressful” (Cohen, Kamarck & Mermelstein, 1983). Respondents indicate how often during the past 30 days they experienced stress-related feelings and thoughts on a scale ranging through *never*, *almost never*, *sometimes*, *fairly often*, and *very often*. The PSS has adequate internal reliability and validity (Cohen et al, 1983). The criteria for high and low were determined by a combination of the distribution of stress scores and scale criteria for high and low stress. Scores ranging from 0 to 26 comprised the low stress group (n=12), and scores of 30 to 56 comprised the high stress group (n=13). Participants (n=5) with average stress scores between 27 and 29 were excluded from this study.

A 14-item, semi-structured questionnaire based on the phases and strategies of self-regulation was also completed: Examples of the questions posed were: *How do you know when you are experiencing stress? What, if any goals do you have to decrease you stress levels? How do you monitor the success of your efforts – in other words, what do you use as feedback to indicate that you are successful?*

Data Analysis

Directed content analysis (Hsieh & Shannon, 2005) was used to analyze data. The goal of directed content analysis is to validate or extend a theoretical framework or theory, which grounds the research question. Themes were based on the following self-regulation concepts and phases, namely a. *mindfulness*, comprising of perceived causes of, and awareness of stress; b. *goal setting*, consists of number of goals set, expectations regarding goals set, preparation for achieving goals, and degree of perceived self-efficacy; c. *goal execution*, comprising of execution strategies, monitoring, and stumbling blocks; d. *adjustment*, consists of positive and negative adjustment strategies;

and e. *self-reflection*, comprising of reaction to failure, level of self-judgement, and experience of the whole self-regulation process.

Open coding (Babbie, 2004) was applied whereby similar patterns and concepts from the predetermined self-regulation phases were grouped together under the same theme. Axial coding was then applied ensuring correct reflection of the data and finally selective coding helped to determine similarities and differences in self-regulation strategies between the two student groups. Finally, themes were indicated as frequencies and percentages for each of the two stress groups. Unanswered questions or irrelevant responses are depicted as discarded data within the tables.

ETHICAL ISSUES

This study forms part of the project entitled *The Nature, Dynamics and Application of Self-Regulation in different South African Health Contexts*, which has been approved by the ethics committee of the North-West University (approval number 06k20). The nature of the study was explained to the participants, after which they were informed that participation is voluntary, and that they could withdraw from the study at any stage of the process. Informed consent was obtained from the participants, and confidentiality was strictly maintained.

RESULTS

The results are summarized in tables one to five. Verbatim responses were translated and examples are given in English only for clarity and uniformity.

Mindfulness

From table 1 it is clear that more participants in the high stress group has lower mindfulness (69.23%) than in the low stress group (25%), regarding perceived causes of stress.

[Table 1]

Low mindfulness was indicated by unrelated, non-specific, dearth of information, and poverty of content responses. One student, for example just said: “My studies, my social life, my family environment”. The majority of participants in the low stress group, however, are only moderately mindful (50%), with an equal number who are highly

(25%) and lowly mindful (25%). Moderate mindfulness is characterized by more specific information, for example: “Feeling that you have too little time to complete a task, and study for exams.” The two groups were similar regarding high mindfulness, which includes elaborate information with deeper meaning, as illustrated by one student who said: “Situations which are difficult to control, and tasks that are not within my abilities.” No difference was found between the two groups regarding awareness of stress.

Goal Management

Goal management consists of goal setting (table 2) and goal execution (table 3).

Goal setting

According to table 2, the two groups are similar regarding number of goals, expectations regarding goals and preparation for achieving goals.

[Table 2]

The majority of participants in both groups use positive action plans in preparation for achieving their goals, for example “...by being active and talking about it to people I trust...”, and “I plan, rest, consider my options, and focus”. Differences were noted regarding origin of goals and self-efficacy beliefs. More participants in the low stress group have intrinsically motivated goals than in the high stress group (75% compared to 61.54%). Intrinsic motivation refers to the inherent tendency to seek out novelty and challenges, to extend and exercise one’s capacities to explore, and to learn (Ryan & Deci, 2000). Examples of intrinsically motivated goals are “...from myself, it is an inner driving force”; and “They originate from internal pondering”. Extrinsic motivation refers to the performance of an activity in order to attain some separable outcome, and thus, contrasts with intrinsic motivation (Ryan & Deci, 2000). Examples of extrinsically motivated goals include “... from my friend, she suggested I seek professional help”; and “...from the things in my life that give me stress, like my studies”. More participants in the low stress group have positive (50%), rather than negative (41.67%) self-efficacy beliefs compared to the high stress group, where the opposite was found (53.84% negative vs 38.46% positive). An example of positive self-efficacy given by one participant is “I will definitely achieve it...”, whilst an example of negative self-efficacy was “I fail dismally when trying to cope”.

Goal Execution

Table 3 indicates that the two groups differ in how they execute their stress-related goals, and in how they monitor this process. They are similar, however, in their perception of stumbling blocks.

[Table 3]

Execution strategies are similar especially with regard to being proactive (61.54% and 58.33% respectively). Examples of being proactive include: "...facing challenges and adapt to the situations"; and "...adhering to my plan, try staying in a routine, and ensuring consistency in my life". More participants in the low stress group, however, use physical activity, for example "relaxation exercises" and "gym" as a strategy (33.33%) compared to the high stress group (23.08%).

The high stress group use internal monitoring, for example "self introspection" more often than the low stress group (53.85% compared to 41.67%) while the low stress group use external monitoring, e.g. "I look at my performance academically..." more often than the high stress group (25% compared to 7.69%). Finally, both the high stress group (61.54%) and the low stress group (66.67%) experience more external, rather than internal stumbling blocks.

Adjustment

Table 4 indicates that a similar pattern regarding adjustment emerged, as positive adjustment was the predominant strategy for the high and low stress groups (84.62% and 91.67% respectively).

[Table 4]

Positive adjustment occurred when participants actively attempted to improve their situation, as seen by a respondent who said "...change approach and method of solving". Only one participant, in the high stress group, referred to negative adjustment, by saying that he/she "...did nothing", thus maintaining the status quo.

Self-Reflection

According to table 5, the two groups have some similar and some different self-reflections on the process of stress-related self-regulation. They are similar in that they predominantly experience negative reaction to failure, however with different specific reactions. The low stress group reflects more positively on self-judgment and experience of the self-regulation process.

[table 5]

The majority of participants in both the high (92.30%) and low (83.33%) stress groups experienced negative, rather than positive reactions to failure. Three sub themes emerged from these negative reactions, namely; experiencing elevated stress, being disappointed in self, and experiencing depression. More participants in the high stress group experience elevated stress (46.15%), in comparison to the low stress group, where more participants experience depression (58.33%). A participant from the high stress group explains his experience of elevated stress as "...increased tension and strain". In contrast, a participant from the low stress group expressed his depression as, "I get depressed, want to be left alone, and feel desperate".

Participants in the low stress group furthermore judged themselves as more positive (50% successful vs 0% unsuccessful) than the high stress group (23.08% successful vs 23.08% unsuccessful) in reaching their goals. The difference between positive and negative judgments is illustrated by responses such as "...generally very successful"; compared to "...not very successful, stress has the upper hand". It is also clear from table 5 that the most prominent experience of the self-regulation process for both the high and low stress groups is that of ambivalence (46.15% & 41.67% respectively). Despite this, more participants in the low stress group experience self-regulation positively than negatively (33.33% vs 0%) in comparison to the high stress group where an equal number (15.38%) of participants experience self-regulation as positive and negative.

DISCUSSION

Overall, the findings appear to show that participants with lower stress are better self-regulators. Firstly, they seem to be more mindful regarding perceived causes of stress, but only to the extent that they have fewer participants with low mindfulness, and more

participants with moderate mindfulness. According to Brown and Ryan (2003), and Langer (2002), mindfulness creates sensitivity to internal and external occurrences, enabling individuals to either disengage from undesirable behaviour or make appropriate choices in line with their desired outcomes. Mindfulness also provides an opportunity for individuals to discontinue futile behaviour, enabling them to make self-authored and informed behavioural changes (Ryan & Deci, 2000). However, the fact that the majority of participants in the low stress group only show moderate, and not high mindfulness, is important. It could be that moderate mindfulness is enough to contribute to better stress regulation as it sufficiently raises the individual's awareness of his or her stress experience. Therefore they are possibly able to choose personal proactive strategies that will assist them in reducing stress levels, (Aspinwall & Taylor, 1997, 2004; Beckmann & Kellmann, 2004). The fact that no differences were found regarding awareness of stress is not really surprising. Studies by Muraven and Baumeister (2000), confirm that awareness per se is insufficient to manage stress, as certain skills or characteristics, such as self-complexity (Ryan, LaGuardia & Rawsthorne, 2005), self-efficacy and self-control are also needed in stress regulation.

The low stress group also generally performs better in terms of goal management. However, even though setting goals has a strong motivational value (Akama, 2006; Cervone, 1993; Zimmerman, 2000), no difference was found between the two groups in this regard. One reason could be that it is more the nature and quality of goals that impact on stress management, than the number of goals set. The fact that lower stress participants have more intrinsically motivated goals, however, confirms the general idea that self-chosen goals have more motivational and energizing value than goals imposed on one by others or the environment (Boekaerts & Corno, 2005; Maes & Karoly, 2005; Ryan & Deci, 2000). Just as the impact of intrinsically motivated goals manifests as heightened performance, self-confidence, perseverance, and ultimately well-being (Ryan & Deci, 2000), it could possibly also manifest as lower stress.

Self-efficacy positions an individual better in terms of effective planning and executing of goals (Bandura, 1986; Brandstädter & Rothermund, 2002), therefore, it is no surprise that the low stress group has higher self-efficacy. According to Luszczynska et al (2005), individuals with higher self-efficacy are more inclined to view stressful situations as challenging, resulting in the ability to maintain focus even when conditions are perceived as adverse.

The groups are similar regarding their goal execution strategies, especially in being proactive, but differ with regards to physical activity. The importance of being proactive is that it assists individuals in maintaining focus, enabling the implementation of goals, while necessary activities are in place that direct behavior (Boekaerts & Corno, 2005). It is therefore surprising that the participants in the high stress group are as proactive as those in the low stress group, especially given the fact that they are less mindful. The more frequent use of physical activity such as relaxation and exercise by the low stress group in this study, confirms the value this has as an execution strategy (Lephuong, Linden & Young, 2003; Du Toit, 1996).

The high stress group uses internal monitoring more often, while the low stress group uses external monitoring more often. Monitoring involves a feedback loop, providing opportunities for individuals to notice progress or lack thereof, as well as, take stock of discrepancies that possibly exist between current and desired behaviors, allowing them to decrease existing discrepancies (Jackson, Mackenzie & Hobfoll, 2000; Maes & Karoly, 2005; Vancouver & Day, 2005). Therefore, it would be logical to assume that what is important is that monitoring does occur, rather than the type of monitoring. However, this study suggests that using external monitoring strategies may enhance better stress regulation. Both groups experience stumbling blocks to be more external than internal. Although stumbling blocks may be perceived as a negative experience, this is not necessarily the case, as the adversity may temporally disrupt the individual's effort providing an opportunity for them to evaluate a possible positive outcome (Carver & Scheier, 2000).

It is a surprise that no difference was found between the two groups regarding adjustment strategies. Adjustment is an action directed process, influenced by ones' personality disposition (Beckmann & Kellmann, 2004), which may impair adjustment ability (Kuhl, 1981; Kuhl & Beckmann, 1994). Adjustment is also compromised when individuals are unable to identify and implement their best recovery strategies, or their repertoire of strategies is inadequate (Beckmann & Kellmann, 2004). One aspect that should be explored further is at what stage adjustments are being made, as positive adjustments that are made too late could be inefficient in terms of stress regulation.

In terms of self-reflection, the majority of participants in both groups have an ambivalent experience of the process of regulating their stress. A possible explanation

for this is that self-regulation is hard work, taking a lot of effort, and as a result resources may become depleted, as indicated by Muraven and Baumeister (2000). More participants, in the low stress group, however, judged their efforts to be positive compared to participants in the high stress group. This is an expected result, as it shows the importance of positive self-judgment in the effective management of stress. The value of positive self-reflection lies in its potential for increased self-efficacy, thus creating motivation for individuals to set more challenges and increase performance ability (Luszczynska et al, 2005). The fact that the majority of participants in both groups experience a negative reaction to failure is not surprising, as Brandstädter and Rothmund (2002) have shown that dissatisfaction and depression are typical reactions to unattainable goals.

CONCLUSION

The aim of this study was to explore qualitative differences in the self-regulation of stress between students who experience high stress levels and students who experience low stress levels. A number of similarities and differences were found between the two groups, with the general indication that participants with lower stress are better self-regulators.

The groups were found to be similar regarding awareness of stress, number of goals set, expectations and preparation regarding goals; using proactive stress strategies and experiencing external stumbling blocks; the way they make adjustments; and react to failure. The groups differ, however, on a number of important facets of stress regulation. The low stress group is slightly more mindful regarding perceived causes of stress, has more intrinsically motivated goals, has higher self-efficacy beliefs, more often uses physical activity in executing their stress goals, uses external monitoring more often, judge itself more positively, and reflects more positively on the self-regulation process.

Most of the obtained differences were expected, and confirm the importance of effective self-regulation in stress management for this group of undergraduate students. The study's unique contribution lies in the fact that it generated qualitative insight into the perceptions and experiences of regulating stress in undergraduate students. The study shows them to have normal fears, uncertainties, abilities and strengths. Integrating all of

these in managing and regulating stress seems to be a dynamic, complex process which needs to be explored further.

This study has certain limitations and consequently the results should be regarded as exploratory and for the purpose of generating hypotheses. The relatively small sample size of this study is not representative of the undergraduate student population or the larger population. Also, no cause-effect conclusions should be made, for example whether better regulation leads to lower stress, or whether lower stress leads to better regulation. Future research may include a larger sample size, making it more representative of the student population. A comparative study involving other populations and diverse ethnic groups could be undertaken. Finally, statistical analysis of the current data may yield new insights in the dynamics of self-regulation and stress management.

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Table 1 Mindfulness

Subtheme and level of mindfulness	High stress group (n=13)	Low stress group (n=12)
Perceived causes of stress		
Low	9 (69.23%)	3 (25%)
Moderate	0	6 (50%)
High	4 (30.77%)	3 (25%)
Awareness of stress		
Low	3 (23.08%)	3 (25%)
Moderate	2 (15.38%)	2 (16.67%)
High	8 (61.54%)	7 (58.33%)

Table 2 Goal Setting

SUBTHEMES	High stress group (n=13)	Low stress group (n=12)
NUMBER OF GOALS SET		
Low	5 (38.46%)	4 (33.33%)
Moderate	5 (38.46%)	6 (50%)
High	3 (23.08%)	2 (16.67%)
ORIGIN OF GOAL		
Intrinsic	8 (61.54%)	9 (75%)
Extrinsic	2 (15.38%)	1 (8.33%)
Both Intrinsic & Extrinsic	3 (23.08%)	1 (8.33%)
<i>Discarded data</i>	0	1 (8.33%)
EXPECTATION REGARDING GOALS SET		
Reduced stress	9 (69.23%)	8 (66.67%)
Being more effective	2 (15.38%)	2 (16.66%)
Other	2 (15.38%)	2 (16.66%)
SELF-EFFICACY BELIEFS		
Positive	5 (38.46%)	6 (50%)
Negative	7 (53.84%)	5 (41.67%)
Ambivalent	1 (7.70%)	0
<i>Discarded data</i>	0	1 (8.33%)
PREPARATION FOR ACHIEVING GOALS		
Positive-taking action	12 (92.31%)	11 (91.67%)
Negative-no preparation	1 (7.69%)	0
<i>Discarded data</i>	0	1 (8.33%)

Table 3 Goal Execution

SUBTHEMES	High stress group (n=13)	Low stress group (n=12)
EXECUTION STRATEGIES		
Being proactive	8 (61.54%)	7 (58.33%)
Physical activity	3 (23.08%)	4 (33.33%)
<i>Discarded data</i>	<i>2 (15.38%)</i>	<i>1 (8.33%)</i>
MONITORING		
Internal	7 (53.85%)	5 (41.67%)
External	1 (7.69%)	3 (25%)
Both internal & external	4 (30.77%)	3 (25%)
<i>Discarded data</i>	<i>1 (7.69%)</i>	<i>1 (8.33%)</i>
STUMBLING BLOCKS		
External factors	8 (61.54%)	8 (66.67%)
Internal factors	5 (38.46%)	4 (33.33%)

Table 4 Adjustment

ADJUSTMENT STRATEGY	High stress group (n=13)	Low stress group (n=12)
Positive adjustment	11 (84.62%)	11 (91.67%)
Negative adjustment	1 (7.69%)	0
<i>Discarded data</i>	<i>1 (7.69%)</i>	<i>1 (8.33%)</i>

Table 5 Self-Reflection

SUBTHEMES	High stress group (n=13)	Low stress group (n=12)
REACTION TO FAILURE		
Negative	12 (92.30%)	10 (83.33%)
<i>Elevated stress</i>	6 (46.15%)	2 (16.67%)
<i>Disappointed in self</i>	4 (30.77%)	1 (8.33%)
<i>Depressed</i>	2 (15.38%)	7 (58.33%)
Positive	1 (7.70%)	2 (16.67%)
LEVEL OF SELF-JUDGMENT		
Successful	3 (23.08%)	6 (50%)
Moderately successful	5 (38.46%)	4 (33.33%)
Unsuccessful	3 (23.08%)	0
<i>Discarded data</i>	2 (15.38%)	2 (16.67%)
EXPERIENCE OF THE SELF-REGULATION PROCESS		
Positive	2 (15.38%)	4 (33.33%)
Negative	2 (15.38%)	0
Ambivalent	6 (46.15%)	5 (41.67%)
<i>Discarded data</i>	3 (23.08%)	3 (25%)