

**THE RELATIONSHIP BETWEEN STRESS LEVELS AND PERSONALITY
TYPES AMONG ADOLESCENTS DIAGNOSED WITH ACNE VULGARIS**

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**Mini-dissertation (article format) submitted in partial fulfilment of
the requirements for the degree Magister Scientiae in Clinical
Psychology at the North West University (Mafikeng campus)**



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Mafikeng

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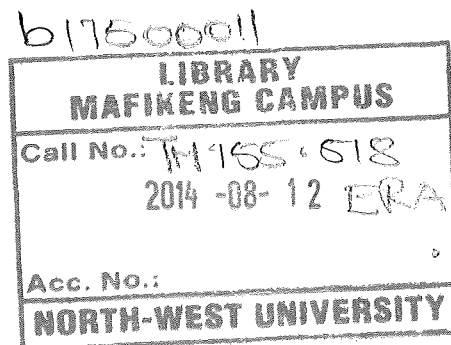


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SUMMARY

THE RELATIONSHIP BETWEEN STRESS LEVELS AND PERSONALITY TYPES AMONG ADOLESCENTS DIAGNOSED WITH ACNE VULGARIS

This study aims to broaden the spectrum of analysis between stress levels and personality type among adolescents diagnosed with Grades I, II and III of acne vulgaris. Some studies have posited that a link exists in the onset and exacerbation of acne and the experience of stress, while other studies have found no such evidence. Personality type also seems to play a role in the perception of stress, although studies are limited.

Forty-four adolescents between the ages of 14 and 18 were involved in the study. These adolescents were all diagnosed with Grades I, II, III of acne vulgaris and recruited by their dermatologists to take part in the study. Quantitative information was obtained through questionnaires. Stress in this study was operationalised by means of the Life Stressors and Social Resources Inventory – Youth Form (LISRES-Y) of Moos and Moos (1994) and personality type established by means of the Jung Personality Questionnaire (JPQ) of Du Toit (1994). Data was analysed for the total group, as well as separately for the introvert and extravert subgroups.

Results indicate that adolescents report higher than average stress levels on certain life domains and tend to fall more within the introverted personality type than the extraverted type. Also apparent was the practical significance between certain life

domains and the subgroups, which indicated that these areas elicit different stress responses from introverts and extraverts. Frequently these domains were home and money (HM), parents (PAR), siblings (SIB), school (SCH) and friends (FR), indicating that in this study it is more the chronic, every day stressors that cause most stress in adolescent lives than major life events that..

Given the results of this study, it is clear that there is a relationship between stresses in certain life domains and personality type of adolescents suffering from acne vulgaris, and that most of these adolescents are introverts. Past research suggest that personality factors may influence adolescents' perception of stressful events, however, it is also possible that stressful events may influence the development and growth of personality traits in adolescents. Many studies framed their research within the literature of adult stress and personality and further exploration of this topic might broaden the spectrum of analyses of stress levels and personality type among adolescents with certain health conditions.

Keywords: Personality type; introvert; extravert; stress levels; adolescents; acne vulgaris.

OPSOMMING

DIE VERHOUDING TUSSEN STRES VLAKKE EN PERSOONLIKHEIDSTIPE ONDER ADOLESSENTE GEDIAGNOSEER MET AKNEE VULGARIS

Hierdie studie beoog om die spektrum van analise tussen stresvlakke en persoonlikheidstipe onder adolossente met Graad I, II en III aknee vulgaris te verbreed. Sommige studies stel voor dat daar 'n verband bestaan in die ontwikkeling en opvlamming van aknee en die ervaring van stres, terwyl ander studies geen bewyse daarvoor kon vind nie. Persoonlikheidstipe blyk ook 'n rol te speel in die persepsie van stres, alhoewel navorsing beperk is.

Vier-en-veertig adolessente tussen die ouderdomme van 14 en 18 was betrokke by die studie. Al die kandidate is gediagnoseer met Grade I, II, en III aknee en is betrek by die studie deur hul dermatoloog. Kwantitatiewe inligting is bekom deur vraelyste. Stres is in hierdie studie gemeet deur die Life Stressor and Social Resources Inventory – Youth Form (LISRES-Y) van Moos en Moos (1994), en persoonlikheidstipe is vasgestel deur die Jung Persoonlikheids Vraelys (JPV) van Du Toit (1992). Die data is geanaliseer vir die totale groep asook apart vir die introverte en ekstroverte subgroepe.

Resultate toon dat adolessente met aknee hoër gemiddelde stresvlakke in sekere lewensdomeine ervaar, en ook neig om meer binne die introverte persoonlikheidstipe te val as die ekstravert tipe. Opvallend is ook die praktiese beduidenheid tussen sekere

lewensdomeine en die subgroepe, wat aandui dat hierdie areas verskillende stres reaksies uitlok vanaf introverte en ekstroverte. Hierdie domeine sluit hoofsaaklik die volgende in: Huis en geld (HM), ouers (PAR), sibbe (SIB), skool (SCH), en vriende (FR). Dit is dan ook 'n aanduiding dat dit in hierdie studie meer chroniese stressors van die alledaagse lewe is wat die meeste stres in adolessente met aknee se lewens veroorsaak, instelle van akute stres.

Wanneer die resultate van hierdie studie oorweeg word, is dit duidelik dat daar 'n verhouding bestaan tussen stres in sekere lewensdomeine en persoonlikheidstipe van adolessente wat aknee vulgaris het, asook dat die meeste van hierdie adolessente introverte is. Vorige navorsing stel voor dat persoonlikheids eienskappe 'n adolessent se persepsie van stresvolle situasies mag beïnvloed, maar dis ook moontlik dat stresvolle gebeure die ontwikkeling en groei van persoonlikheids eienskappe in adolessente mag beïnvloed. Menige studies het hulle navorsing oor hierdie aspek gegrond op die literatuur van volwasse stres en persoonlikheids eienskappe. Verdere ondersoek in hierdie onderwerp mag die spektrum van analise van stresvlakke en persoonlikheidstipe onder adolessente met spesiale gesondheidskondisies verbreed.

Sleutelwoorde: Persoonlikheidstipe; introvert, ekstravert, stres vlakke; adolessente; aknee vulgaris.

PREFACE

Article format

This article format, as described in the General Regulation A 13.7 of the North-West University, was chosen for purposes of this mini-dissertation that is part of the requirements for a professional masters degree.

Selected journal

The target journal for submission of the current manuscript is the *South African Journal of Psychology*.

Page numbering

For purposes of this mini-dissertation page numbers run through for the whole document. For submission of the manuscript numbering is according to requirements and starting on the title page of the manuscript.

INSTRUCTIONS TO AUTHORS

1. The manuscript should be typed in 12-point font (Times Roman) double- spacing.
2. The first page should contain the title of the article, the name(s) of the author(s), as well as the address of the author to whom the correspondence should be addressed.
3. The abstract should be on a separate page.
4. The text of the article should be started on a new page.
5. Indicate the beginning of a new paragraph by indenting its first line two spaces, except when the paragraph follows a main or secondary heading.
6. The headings should all start at the left margin, and should not be numbered. The introduction to the paper does not require a heading.
7. The referencing style of the SAJP is similar to those used by the British Psychological Society and the American Psychological Association (See *SAJP Guide to Authors*)
8. In the reference list, the first line of each reference starts at the left margin; subsequent lines are indented two spaces.
9. Illustrations, tables, and figures should be prepared on separate A4 sheets. They should be numbered consecutively, grouped together, and attached to the en of the manuscript. Tables should be drawn without grid-lines separating the cells in the tables. The appropriate positions in the text should be indicated.
10. Authors are requested to pay attention to the proportions of illustrations, tables, and figures so that they can be accommodated in single (82mm) or double (179mm) columns after reduction, without wasting paper.

11. Once the article has been accepted for publication, a computer diskette must also be submitted. MS Word is the preferred text format. The manuscript number and author or author's name(s) should be clearly indicated on the diskette.
12. As the SAJP does not employ a full-time language editor, it is recommended that, once articles have been accepted for publication, authors send their manuscripts to an external language specialist for language editing. Furthermore, it is recommended that a note indicating that the manuscript had been language edited accompany the final submission of the manuscript.

MANUSCRIPT

**THE RELATIONSHIP BETWEEN STRESS LEVELS AND PERSONALITY
TYPE AMONG ADOLESCENTS DIAGNOSED WITH ACNE VULGARIS**

**The relationship between stress levels and personality types among adolescents
diagnosed with acne vulgaris.**

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ABSTRACT

The purpose of this explorative study was to investigate the relationship between stress and personality type. A sample of 44 adolescents presenting with Grades I, II and III of acne vulgaris were selected. Measures were collected on the Life Stressors and Resources Inventory - Youth Form (LISRES-Y) of Moos and Moos (1994) and the Jung Personality Questionnaire (JPQ) of Du Toit (1992). The results of this study indicate that adolescents with acne vulgaris report higher than average stress levels in certain life domains, and tend to be more introverted than extraverted. Implications of these findings are discussed.

Keywords: Acne Vulgaris, adolescents, stress levels, personality type.

The relationship between stress levels and personality types among adolescents diagnosed with acne vulgaris

The adolescent experience is normatively described as a time of changes across the cognitive, affective behavioural, and personality dimensions (Boulter, 1998; Thom, 1988). Adolescence has also been shown to be a critical period for the development of self-esteem, i.e., one's evaluative judgement about oneself (DuBois, Felner, Phillips, & Lease, 1996), or one's overall feelings of worth or value as a person (Harter, 1993).

Acne vulgaris, a disorder associated with the chronic inflammation of the pilosebaceous units, is very common in adolescence (Tan, 2004). Acne Vulgaris is a skin condition that affects up to 85% of the adolescent population in westernised societies (Cordain, Lindeberg, Hurtado, Hill, Eaton & Brand-Miller, 2002)). Although it has been established that acne has a physiological and genetic basis (Beylot, 2002; Plewig & Kligman, 1993; Zouboulis, 2004), relatively few studies have assessed the devastating psychological impact this disease has upon individuals (Kellett & Gawkrödger, 1999; Mallon, Newton, Klassen, Stewart-Brown, Ryan & Finlay, 1999).

Some studies indicate a relationship between acne and stress (Amit Garg, Chren, Sands, Matsui, Marenus, Feingold & Elias, 2001; Chiu, Chon & Kimball, 2003; Polenghi, Zizak & Molinari, 2002; Toyoda & Morohashi, 2003) while others found no evidence to support this statement (Masam, Vawda, Gorhan, Nkwanyana & Aboobaker, 2005). Variables such as personality types (Eysenck, 1991:1981; Ornstein, 1993; Stuttaford, 2004) and the manner of appraisal (Jordaan & Jordaan, 1998; Lazarus & Folkman, 1984; Schlebusch, 2004) have also been linked to stress levels.

The following study looks at the relationship between stress levels and personality types among adolescents diagnosed with acne vulgaris from a biopsychosocial approach. It will take into account the interactions or transactions that take place between biological, cognitive, and behavioural aspects within the individual, as well as between any of these aspects and the social and physical environment (Sutton, Baum & Johnston, 2004).

Adolescence and Stress

Adolescence is a stage that ranges from the ages of approximately 12-21 years and, although best described with reference to psychologically developed characteristics and socio-cultural norms (Plug, Meyer, Louw & Gouws, 1991; Thom, 1992), it has also been described as a period of rapid cognitive, social, emotional and personality development (Bornstein & Lamb, 1992; Rice, 1990; Santrock, 1997). Because adolescents are exposed to many changes on so many levels, stress may be a natural consequence.

According to the Microsoft Encarta 97 Encyclopaedia (1997), stress is seen as a physical, chemical or emotional development that causes strain. It can be characterized by the disturbance of homeostatic balance in the body, and more specific, through symptoms such as heart palpitations, chronic fatigue, anxiety and tension (Plug, Meyer, Louw & Gouws, 1991). Lazarus (1999) and Moos (1994) conceptualise stress in terms of interactions between stressors, reactions (physical symptoms) and individual factors, such as personality type.

Theories of stress during adolescence have included views that biological change causes severe disruption in psychological status (Hall, 1904; Freud 1958; Blos 1962), which suggests that adolescents must first pass through a near-psychotic state because of the disruption experienced in biological status, but there is little empirical evidence to support this perspective (Peterson & Spiga, 1982; Peterson & Taylor, 1980).

Another view is that of the stressful life events approach that focuses primarily on events that involves sudden and major changes, such as changing schools, the separation of parents, or even death of a loved one (Thom, 1992). Mates and Allison (1992) found that sudden changes like these could result in lower self-esteem, behavioural problems and lower grades in school.

Carson, Butcher and Mineka (1996), and David and Suls (1999) have indicated that it may not necessarily only be the major life events that cause stress, but also the everyday frustrations and chronic strain. Such stressors involve the adolescents' relationship with his/her parents, siblings, peers, boyfriend or girlfriend, the home situation, and achievement at school (Mates & Allison, 1992; Moos & Moos; 1994).

Adolescent responses to stress

Adolescents respond to these chronic, everyday life stresses behaviourally, physiologically and cognitively. Behaviourally adolescents respond by reducing the intrapsychic and affective arousal that is introduced by a stressor. This is done by altering the relation of a stressor to a threat or by removing the threat altogether (Peterson & Spiga, 1982). The adolescent's ability to remove the threat, however, is influenced by his/her feelings of self-efficacy (Bandura, 1977), which is the belief in

one's own capabilities to organize the course of action in order to control a certain outcome (Sutton, Baum & Johnston, 2004). Self-efficacy arises from self-esteem and past feelings of efficacy (Bandura, 1977). Individuals who do not have the necessary experience to face the many novel experiences of adolescence with confidence, may not be able to alter or remove the threat they are confronted with. These adolescents may experience increased feelings of anxiety and stress (Peterson & Spiga, 1982).

Discoveries since the 1930's have linked non-specific stress with biological and structural changes of previously unknown origin. Since then, research has shown that stressors resulted in physiological responses such as elevated hormone and cortisol levels (Dickerson & Kemeny, 2004). Cortisol enables the body to cope with a stressful event by readying it for the fight-flight response. However, with prolonged or chronic stress, cortisol levels are constantly elevated (Yousfi, Mathews, Amelang & Schmidt, 2004), resulting in bodily reactions such as the perpetual stimulation of sebaceous glands in the skin, causing increased sebum (oil) production (www.cnn.com/health) that can exacerbate or cause acne vulgaris (Beylot, 2002; Zouboulis, 2004).

The cognitive response to stress depends on the individual's appraisal of the event (Lazarus, 1999). Stress arises from an individual's perception that situational demands are taxing or overly challenging, thus the same event may be perceived as stressful by one person, but not by another (Lazarus & Folkman, 1984). Individuals are not passive in their judgment of a situation, and fill it with personal meaning according to their adaptational style, interactional style and personality type (Janisse, 1988; Jordaan & Jordaan, 1998). Lazarus (1999) confirms that the importance of personality

factors in producing stress reactions require that we define stress in terms of transactions between individuals and situations.

The relationship between stress and personality type

The relationship between stress and personality type has long been a focus of debate and much research (Eysenck, 1991). Common to many of these studies is the notion that personality type may alter the occurrence or appraisal of situational precursors to stress (Hemenover, 2001; Krone, 1990), although recent interest has been focused mainly on the study of adult stress and then echoed in research on stress and personality among children and adolescents (Kliewer, 1991; Ryan-Wenger, 1992).

The majority of published studies about this relationship seemed to have based their research on the theory of personality behaviour patterns of Friedman, which he labelled Types A and B Personality Behaviour Patterns (PBP) (Grossarth-Maticek & Eysenck, 1990; Sutton, Baum & Johnston, 2004). Individuals with Type A PBP were shown to be competitive, ambitious, impatient and constantly seeking to exert control over their environment, while individuals with Type B PBP, although still competitive and ambitious, were more contemplative, calm and patient. According to this theory, an individual with Type A PBP would be predisposed to a higher number of physiological symptoms, and seem to live at a much higher level of stress than an individual with Type B PBP (Ornstein, 1993; Smith & Ruiz, 2004; Stuttaford, 2004).

Other studies on this relationship have been directed toward focused personality factors and features, such as avoidance (Suls and Fletcher, 1985), locus of control

(Parkes, 1986), and self-assessments of esteem or hardiness (Kobassa & Puccetti, 1983). McCrae and Costa (1986, 1987) have suggested that examination of the role of personality and stress may benefit from a more global approach, emphasizing more enduring aspects of general personality structure (such as introversion and extraversion), rather than more limited and focused personality aspects.

Stress and Introversion/Extraversion

By means of factor analysis, Eysenck (1947) identified introversion-extraversion as one of the three primary dimensions of personality, the other two being neuroticism and psychoticism. He considered his findings to represent an essential confirmation of Jung's ideas of personality typology of introversion and extraversion. According to Jung (1953) extraverts generally have a lower level of arousal as compared to introverts, for whom a high level of arousal is rather typical. Eysenck's further research (1981) showed that a specific interrelation existed between the level of reaction and the stimulative value of a situation, depending on whether the individual has an introverted or an extraverted personality type. He regarded intro- and extraversion as one of the individual's most important traits when faced with a perceived threatening situation.

This study aims to broaden the spectrum of analyses between stress levels and personality type among adolescents suffering from Acne Vulgaris. The key objective is to explore the possible relationship between the stress levels of introverted and extraverted adolescents.

METHOD

Design

An exploratory research design with features of a survey was employed to examine the stress levels and personality types among adolescents with acne vulgaris.

According to Ader and Mellenburgh (1999), a survey is a solution for the problem of collecting information about a population and by randomly selecting the sample inferences can be made about the population as a whole.

Participants

After consultation with two dermatologists, 55 adolescents between the ages of 14 and 18 who had been diagnosed with Grades I to III of acne vulgaris, according to the classification of Kligman and Plewig (1976) were approached to take part in the study. Of these 55 adolescents, 4 declined to take part in the study, 5 did not return their questionnaires and 2 candidates tested as ambiverts (neither falling between in the introverted nor extraverted personality type). Therefore the statistical analysis on this group was performed on 44 adolescents (31 females and 13 males). The means, standard deviations and range of scores were calculated through descriptive statistics. Significant differences between average scores of stress levels, introverts and extraverts were obtained through t-scores. Effect size was calculated to determine the practical significance. To ensure anonymity, no demographic information was requested on the participants.

Measuring Instruments

Stress levels were assessed by the Life Stressors and Social Resources Inventory – Youth Form (LISRES-Y) of Moos and Moos (1994). This questionnaire measures stable life stressors and social resources and was developed by Moos and Moos (1994) as an instrument to reflect an adolescent's current life context. This questionnaire is important to this study for three reasons. Firstly because current measures of psychosocial stressors focus mainly on acute life events rather than chronic stressful circumstances. Both stressors and social resources are associated with the well being and health among adolescents. Stable life context factors are more closely associated with adolescent functioning than acute life events, and stable contextual factors influence an adolescent's appraisal of life events. Lastly, life stressors (and social resources) are associated with changes in adaptation among adolescents with emotional and behavioural problems. These context factors influence psychosocial functioning in adolescents with medical conditions as well as healthy individuals (Moos & Moos, 1994).

In this study, the LISRES-Y was administered individually and consists of 209 items about stress and social resources in different dimensions of life. The total algebraic scores of the different subscales give an indication of the amount of life stressors in every life domain. High scores indicate high levels of stress with regards to the specific stressor or domain. The subscales include the following domains: physical health (PH), home and money (HM), parents (PAR), siblings (SIB), extended family (FAM), school (SCH), friends (FR), boyfriend/girlfriend (BG) and negative life events (NLE). The NLE scale refers to the number of stressful life events in the last year in all the stressor domains mentioned before.

Moos and Moos (1994) report alpha-coefficients for the stressor scales ranging from 0.66 for the Friends subscale, to 0.91 for the Parents subscale in the case of girls. For boys it ranges from 0.69 for the Friends subscale to 0.92 for the Parents subscale. Most indexes are higher than 0.80. The specific reliability indexes that Moos and Moos (1994) found for the life stressor subscales range from 0.66 to 0.92 for girls and boys. In this study a Cronbach alpha of 0.53 was obtained.

The LISRES-Y distinguishes significantly between various groups of adolescents, namely depressed and healthy youth, as well as youth with rheumatic disease and conduct disorders. There is a positive correlation between life stressors, as measured by the LISRES-Y, and other indexes of adolescent functioning such as alcohol and drug abuse, depression, anxiety and conduct disorder, as well as a negative correlation with the degree of self worth (Moos & Moos, 1994)

Introversion (I) and Extraversion (E) were assessed by the Jung Personality Questionnaire (JPQ; Du Toit, 1992) that is based on the personality framework of Carl Jung with the goal to be used mainly for vocational counseling for adolescents at school level. There are 75 statements; each consisting of 2 opposing tasks of which the candidate has to choose the best suited to him/her. The JPQ is a criteria-aimed questionnaire and not norm directed. The scores are thus seen as absolute and are not interpreted comparatively to scores of a norm group (Du Toit, 1992).

Du Toit (1992) report alpha coefficients for the IE scale that range from 0.81 for grade 9 boys, to 0.8 for grade 12 girls. The total reliability coefficient for grades 9,10 and 12 girls and boys were found to be 0.86. A comparative study was done between

results of the JPQ and that of the Gray-Wheelwright Test (GWT; Wheelwright & Beuhler, 1964), which is also based on Jungian psychology. A correlation between the two was found and could be seen as an indication of satisfactory validity of the JPQ.

Procedure

Adolescent patients were recruited by the dermatologists and provided with an information booklet that was put together for this purpose. The booklet contained an introductory letter, stating the purpose of the study, ensuring confidentiality and providing the researcher's contact details for additional information. The pack also contained consent slips, which were to be completed by the candidate and his/her guardian, as well as two questionnaires. The dermatologists familiarized the individuals with the contents of the booklet after consultation, and questionnaires were completed at home. After completion the questionnaires were returned to the specific dermatologist and consequently collected by the researcher for processing.

Data analysis

To examine the stress levels and personality types among adolescents, largely descriptive statistics were computed. Means, ranges and standard deviations were computed to give an overview of the LISRES-Y and the JPQ. The sub-scales of the LISRES-Y and personality types were correlated reporting a Product-Moment correlation coefficient as the degree of the relationship between the two. To determine the significant difference between the scores obtained by introverts and extraverts on the LISRES-Y, effect sizes are reported. The use of statistical significance testing as a routine procedure has been criticised (cf. Cohen, 1990; Hunter, 1997). An appeal to authors has also been made to place more emphasis on effect sizes (cf. Fidler, Thomason, Cumming, Finch & Leeman, 2004) as a way of attesting for the practical

significance of the findings. Effect size (ES) is a name given to a family of indices that measure the magnitude of a treatment effect. Effect sizes are independent of sample size. Thus to attest to the practical significance of the findings Cohen's d is reported.

RESULTS

Descriptive statistics obtained by the participant for stress levels on the LISRES-Y and the personality types as measured by the Jung Personality Questionnaire for Introversion and Extraversion are presented initially. For the purposes of this study, only the stressor scales and scores of the LISRES-Y were relevant and the scores of the social resources were not taken into account. The same applied to the JPQ as only the introvert/extravert scales were relevant. A comparison is made of the stress levels by personality type and finally the practical significance of the findings are computed based on effect sizes.

Generally, the findings indicate a higher than average incidence of stress in 4 of the 9 domains of stress levels. The four domains are as follows: home and money (HM), parents (PAR), school (SCH), and friends (FR). The ranking shows the highest to the lowest mean obtained. In terms of the LISRES-Y the T score range is 46 – 54 for an average description of stress level (cf. Moos & Moos, 1994). The table below presents descriptive statistics based on the LISRES-Y for the entire group of participants.

Table 1: Descriptive statistics for the LISRES-Y as obtained for the Total Group (N=44)

Subscales of stressors	Min	Max	Mean	SD	Rank
Physical health (PH)	39	70	49.3	9.4	7
Home and money (HM)	41	80	58.8	13.8	1
Parents (PAR)	29	80	56.8	12.5	2
Siblings (SIB)	20	76	53.4	17.7	5
Extended family (FAM)	37	80	52.9	13	6
School (SCH)	34	80	55.8	14.3	3
Friends (FR)	35	80	54.2	13.9	4
Boyfriend/Girlfriend	20	60	26.8	12.4	9
Negative life experiences (NLE)	35	42	37.2	2.8	8

The findings also indicate that overall, there were more introverts (70.45%) as compared to extraverts (29.55 %). The figure below represents male and female introverts and extraverts for the total group on the JPQ.

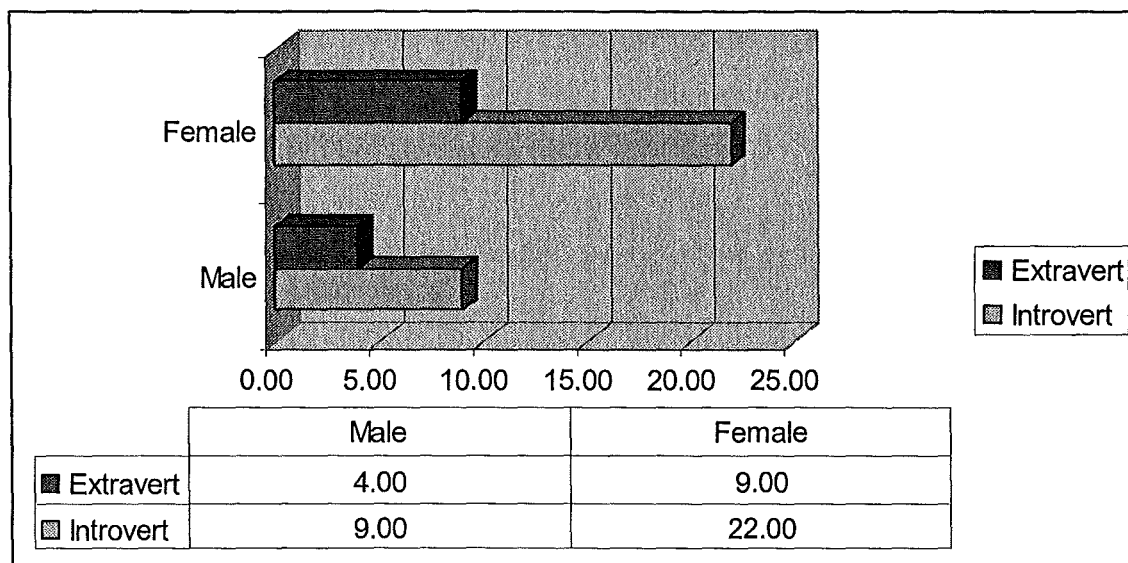


Figure 1: Male and Female Introverts and Extraverts for the Total Group as measured on the JPQ

The results also show that for the sub-groups different stressors seem to be important. Tables 2 and 3 below represent the stressors and their rankings for the extraverted and the introverted groups. For the extraverted group, the extended family seemed to rank higher than the other stressors as indicated below.

Table 2: Descriptive statistics for the extraverted group on the LISRES-Y

Subscales of stressors	Min	Max	Mean	SD	Ranking
Physical Health (PH)	44.00	70.00	51.00	7.70	3
Home and money (HM)	41.00	65.00	48.10	7.10	5
Parents (PAR)	29.00	64.00	49.90	8.70	4
Siblings (SIB)	20.00	67.00	46.20	13.70	7
Extended Family (FAM)	41.00	77.00	54.20	11.60	1
School (SCH)	39.00	77.00	54.00	11.20	2
Friends (FR)	35.00	62.00	48.20	9.00	6
Boyfriend/Girlfriend (BG)	20.00	57.00	35.70	14.10	9
Negative Life Experiences (NLE)	35.00	42.00	37.00	2.90	8

Table 3 shows the results for the introverted group. For this group, home and money, parents, school and friends scored above the average set by Moos and Moos (1994). The rankings in the table show the highest to the lowest stressor.

Table 3: Descriptive statistics for the introverted group on the LISRES-Y

Subscales of stressors	Min	Max	Mean	SD	Ranking
Physical Health (PH)	39.00	70.00	48.80	10.20	7
Home and money (HM)	41.00	80.00	64.40	12.90	1
Parents (PAR)	41.00	80.00	60.70	11.80	2
Siblings (SIB)	20.00	76.00	56.50	19.00	5
Extended Family (FAM)	37.00	80.00	53.20	13.70	6
School (SCH)	34.00	80.00	57.70	15.30	3
Friends (FR)	35.00	80.00	57.50	14.80	4
Boyfriend/Girlfriend (BG)	20.00	60.00	22.40	8.20	9
Negative Life Experiences (NLE)	35.00	42.00	37.30	2.80	8

Table 2 and 3 are consistent in regard to the least importance of negative life experiences and boyfriend/girlfriend as stressors in the lives of the respondents.

The sub-sales of the LISRES-Y and the personality types as captured by the JPQ were correlated to find out if a relationship exists between them. The table below summarises these observations.

**Table 4: Correlations between the LISRES-Y sub-scales and the JPQ's
Introversion and Extraversion**

PH	-0.05
HM	0.56
PAR	0.41
SIB	0.22
FAM	-0.02
SCH	0.04
FR	0.23
BG	-0.65
NLE	0.08

The table above indicates that home and money (HM: $r = 0.56$) and parents (PAR: $r = 0.41$) were positively correlated with introversion and extraversion.

Boyfriend/Girlfriend (BG) correlated negatively with introversion and extraversion (BG: $r = -0.65$).

To test for differences between introverts and extraverts in terms of significant stressors in their lives, Cohen's d was computed. Table 5 below indicates there is a high practical significant difference between the stressors introverts and extraverts experience in terms of home and money (HM: $d = -1.27$), parents (PAR: $d = -0.92$), and boyfriend/girlfriend (BG: $d = 0.94$) domains. The table also shows that there is a moderate practical significance between the stressors experienced by introverts and extroverts in terms of the siblings (SIB: $d = -0.54$) and friends (FR: $d = -0.63$). It can be concluded that there are differences in the types of stressors experienced by introvert and extrovert personality type experience.

Table 5: Effect sizes for the differences between average scores of introverts and extraverts.

Subscale	Extraversion	Introversion	d value
	Averages	Averages	
PH	51.0	48.8	0.22
HM	48.0	64.4	-1.27
PAR	49.9	60.7	-0.92
SIB	46.2	56.5	-0.54
FAM	54.2	53.2	0.07
SCH	54.0	57.8	-0.24
FR	48.2	57.5	-0.63
BG	35.7	22.4	0.94
NLE	37.0	37.3	-0.09

DISCUSSION

It is the intention of this study to explore the relationship between personality type and stress among adolescents diagnosed with acne vulgaris. In support of this aim, the analysis of the total group of adolescents revealed that more individuals fell within the introverted group than the extraverted group. Findings indicate that 70,45% tested as introverts and 29,55% fell within the extraverted group. In a study on healthy adolescents, Rudolph (2002) concluded that female adolescents experience higher levels of interpersonal stress than males, especially in areas that concern their peers and family. Interestingly, although the amount of male and female candidates in their study differ, the percentage of individuals who fall within the introverted group is similar for both male (69,27%) and female (70,97%). The same is the case for extraverted males (30,77%) and females (29,03), thus indicating that the average adolescent suffering from acne tend to be introverted.

Where stress levels are concerned, results show that in the 9 life domains tested, 4 indicate higher than average stress levels. These domains include home and money (HM), parents (PAR), school (SCH) and friends (FR). This finding is consistent with past research by Mates and Allison (1992) and Lau (2002) who, along with the aforementioned 4 domains, included siblings as a source of high stress levels among adolescents. These results is supported by previous studies that suggested that it is not the major life events that cause the most stress in adolescents' lives, but the chronic strain they experience in everyday life, such as at home, school, with their peers, parents and siblings (Carson, Butcher & Mineka, 1996; David & Suls, 1999).

Three of the life domains measured was highly correlated with introversion and extraversion. Home and money (HM) and parents (PAR) were positively correlated while boyfriend/girlfriend (BG) correlated negatively with the personality types. This indicates a definite relationship between introversion and extraversion and high stress levels in these domains.

What was also apparent is the practical significance between the life domains of home and money (HM), parents (PAR), friends (FR) and siblings (SIB). These areas seem to elicit different stress responses from introverts than extraverts and previous research support the finding that different life domain stressors are more important than others; it was found that individuals may be predisposed to experience to more positive or negative events owing to their pre-existing personality traits (Fergusson & Horwood, 1987; Heady & Wearing, 1989). Mak, Blewitt and Heaven (2004) support this finding by suggesting that introverted students may have fewer internal resources to cope with stress, parents and school teachers and peers, even more so when the individual is anxiety-prone. Other research on neuroticism (N) and extraversion (E)

found that N disposed individuals towards more negative life events, while E acted as a disposition towards more positive life events (Magnus, Diener, Fujita & Pavot, 1993).

Adolescent response to stress seems to be complex. Many factors in the environment and the person combine to generate stress and include biological, psychological and environmental aspects. This study largely followed the interactional approach of Lazarus and Folkman (1986), which states that outside occurrences are only stressful in terms of the perceptions of the individual. Personality types, for example introversion and extraversion, may alter the situational precursors to stress, which in this study supports the finding that introverts and extraverts experience stressors differently. However, little research has explored the specific applicability of this statement to adolescent populations. Equally little attention has been given to the opposite interpretation – that stressful events may influence the development and growth of personality traits (Hoffman, Levy-Shiff & Malinski, 1996). For example, Erikson's (1968) theory on personality growth in adolescence suggests that there is a very real possibility that certain types of stressful events, for example the death of a parent, may influence individual tendencies to neuroticism and extraversion. As such, more longitudinal research involving the process orientation seems justified in order to clarify the direction and the quality of the link between personality and stress.

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