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Level of Stress and Technology Support for the University Workforce and Freshmen Students

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Abstract

Any abrupt circustance of everyday life bring in stress among individuals.It is worthwhile to produce an assessment tool of the intensity of stress, identify and rank stressors and produce data base for possible interventionsfrom the perspective of stressed clientele -workforce and students. Theoretically, Transactional model of stress and coping posits individuals viewing the environment objectively and deriving explanation for stress experienced to work out ways to deal with the situation. The study employed quantitative, descriptive, online survey of stress level, stressors and preferred intervention to non-probable sample of workforce and students of Bulacan State University (*N*=317), and adhered to the ethical protocols particularly informed consent, risk management, data confidentiality and privacy. From the data analysis, findings infer significant and moderate level of stress. Among the stressors are *family expectations*, *academic requirements* and *adjustments*, *social life*, etc. Among the interventions perceived to be helpful are: *learning support on mental health*, *counseling*, *spiritual support* and *team building.* A technology interface is designed to make the initial assessment into technology form that would be easily accessible to prospective clients and to be managed by administrators who may be psychologists, guidance counselors or academicians. The study forwards the feasibility of a stress intensity measuring applications and the fulfillment of SDGs 3 and 9 – good health and well-being and Industry growth, innovation and infrastructure. It looked into the psychological well-being of the participants and designed a possible technology to make an accessible tool that would gauge stress quickly and efficiently.

***Keywords*: Stress intensity measure, SDG 3, SDG 9, stressors, technology support**

Introduction:

In the experience of day-to-day circumstances, more so with hazardous events such as the pandemic, there arises an inevitable feeling of stress and anxiety that eventually affects one's psychological well-being. Those affected would have to reflect upon the situation, objectively view it or try hard to understand it in order to adjust and cope so well. Foremost, those in the academe are the most stressed with their routines such as going to and from school, mingle with friends, perform tasks well with others or alone, meet deadlines, fulfill the expectations of family, boss and significant others. Incidentally this lifestyle is even derailed when unavoidable incidents come (Anderson, 2020).

During the pandemic times especially, as the Philippines experienced granular lock down, continuous endeavor to adjust to the situation were expended. The situation assessed,

reported feeling loss, stressed and tendency to over think (WHO,2020). Surveys to students and work forceat testedtoabout 40-60%incidences of overthinking, feeling anxious and heightened stress level (Shandar&Reddy, 2022). As most students and even the work force experiencedsignificant amount of stress, and that stress take a significant toil on one's health, happiness, and learning, it is deemed worthwhile to assess the intensity or level of stress, the stressors and the kind of help that may be rendered. Lee& Han (2020) suggested investing in Information and Communication Technology (ICT) infrastructure in the education service in order to achieve educational outcomes particularly in the enhancement of everybody's psychological well-being.

Bajwaet.al (2019) found a positive change in one's self-esteem when one is stressed. Assessing stress level is in itself beneficial as it enables the person to realize his physiology and psychology. When this is well measured, the knowledge gained from its results does enable the individual to reflect on his well-being and work out ways of elevating the sagging self-esteem. Stress that is not admitted thus not fully understood presents adecreaseinone's social and emotional well-being, and eventually inone's productive living.

Stress is said to be manifested physiologically by numbness, eye flickers, sleeplessness, lacking in appetite, feeling fearful and the like (Carlson and Thomas, 2007). Assessing its level had been thru self-reports of recalling these feelings over the past week. This seems to be in accurate and off the trend in the present time as it would take too much time, censorship and subjectivity to measure it. Thus, a utility of a technological device may produce more accurate results that would tick on immediate interventions. Muuraiskangas,et.al. (2022) pointed the accuracy of intervention if within the admitted need and the choice of the clientele. Institutions of learning must be addressing this pressing health and well-being concern thru minimally describing the level of stress, identifying the triggers and intervening where applicable and helpful.

Stress is the body's reaction to pressures or threats(Kooklhaas,et.al2011).It is the body's reaction to one's incapability to manage a situation. The physiological reaction to stress is manifested in one's attempt to regain the biological normal state termed as homeostasis(Daryl, O'Connor, Thayer,&Vedhara,2021). When stress is not identified, the possibility of mental disorder is inevitable (Saxena,2020).For one, Post-traumatic stress disorder (PTSD)a disorder that develops in experiencing a shocking, scary, or dangerous event may arise. While it is natural to feel afraid, prolonged fear triggers split-second changes in the body(Giorgi,et.al2020).Panic disorder is also a related after math of stress, when stored tensed muscles would not undergo processing. Studies have shown that one-third of people with panic disorder also develop a goraphobiathat is considered to beacom or bidcondition.

Another possibility of unnoticed stress is anxiety reaction, also called social phobia, characterized as fear of being judged, negatively evaluated, or rejected in a performance situation (Corey,2011). Obsessive-Compulsive Disorder (OCD)is a common ,chronic , and long-lasting disorder in which a person has uncontrollable ,recurring thoughts (obsessions) and/or behaviours (compulsions)that push the urge to repeat over and over certain maladaptive behaviour (Saxena, 2020).

Stressors do come from triggers of needs that must be addressed. Foremost perhaps is

financial or economic burden that everyone do experience (Giorgi,et.al2020).A survey of stress or among students similarly relayed lack of net work infrastructures, computers, and internet access as stressful (Tadesse&Muluye,2020). A study by Wang et.al (2021), pointed other stressors such as social distance, limited communication and emotional and spiritual detachment. These accordingly affect one's creativity and well-being. The state of being productive is derailed when stress is felt by any member of the workforce.

Interventions may come in the form of facilitation of breathing, psycho-education, emotional and spiritual nourishment and counseling and psychotherapy (Matsayi Aji, Baba Muhammad, & Abubakar, 2024). At the height of the pandemic, learning support on mental health promotions were helpful to different groups. Even beyond the pandemic, counseling, psychotherapy and psychoeducation are still very much useful.

As intensity of stress be measured, psychological well-being is heightened. An individual would mindfully decide on an action that would benefit him in all aspects of his life. Similarly, among counselors, psychotherapists and all those in the helping profession, quick assessment would save time and energy and focus on counselling and related intervention (Corey,2011). As good health and well-being are the paramount desire in every institution of learning, these conditions must be the top concerns of those in authority to intervene such that a healthier social environment will be evident.

This endeavour is an initial attempt and baseline study describin level of stress, identifying stressors as well as intervention deemed appreciated by the clientele. The output will yield description of stressors, measure intensity of stress and design a technology that will ease the psychological assessment process. The output would respond to both Sustainable development goals 3 and 9, specifically on – good health and well-being and Industry growth, innovation and infrastructure.

Research Objectives

This is the initial or baseline study towards technology development of stress intensity measuring application. The focus is on describing the stress level of the university workforce and freshmen students, identify stressors and point out interventions that may be appreciated by the study participants. A design of technology is presented as an output. The problem addressed in this study are on the description of the level of stress among BulSU workforce and freshmen students, identification and ranking of stressors and intervention deemed significant by the select participants.

Theoretical Lens

The transactional theory of stress and coping is a model developed by the psychologist Lazarus in the 1960s (Sanderson,2020). The theory posits individuals' capability to view and transact with his environment, make definitions of what he is feeling and thinking and eventually find meaning of such event. Accordingly, the amount of stress people experience is based on their assessment of two factors: their assessment of the stressors (called primary appraisal), and their assessment of the resources they have in order to copewell with the stressful event (called secondary appraisal).For primary appraisal, some may appraise the

stress or as severe, while others may appraise it as mild or some what positively as, "*Atleast I do not feel that way*".

People most likely engage in secondary appraisal in examining their ability to cope with the event as they appraise there sources they have (Chia-Hung Lin,Shu-Fen Siao, You-Jie Lin, Pin-Hsien Hsin, Mack Shelley Yen-Han Lee, 2022). Thus the need for assessment of stress level, as this will yield to identification and leveling of the intensity, the triggers and the possible interventions.

Methodology

The study employed quantitative, descriptive, survey of assessing the level of stress, stressors and interventions deemed helpful by the BUlSU workforce and freshmen students. Survey was thru self-report responses to the google formed questionnaires which contained informed consent, four-part questionnaire inclusive of demographics and a debrief. A total of three hundred seventeen (317) participated in the study, with 53% female and 46% male, 81% are students while 19% are university personnel. Data were treated with descriptives. The following table presents the demographics of the study participants.

Table 1
Description of the Study Participants

Gender	Male	Percentage	Female	Percentage	Total
	147	46	170	53	317
Status	Personnel		Student		
	257	81	60	19	317

Results and Discussion

Level of Stress

The level of stress is described by way of self-reporting how participants feel the physiological manifestations following a five-point Likert type scale, 1 as not at all and 5 as most of the time. Table 2 presents the result.

Table 2
Level of Stress Descriptions

	Mean	Std. Deviation	Cumulative Percentage
Numbness of hands	2.22	1.10	33
Movement of the pupils of the eye	2.12	1.07	35
Muscle trembling	2.26	1.20	33

Headaches	2.97	1.29	35
Pulse movement	1.82	1.09	33
Loss of appetite	2.45	1.38	53
Sleeplessness	2.88	1.38	33
Feeling fearful	2.66	1.41	22
Feeling insecure	2.78	1.38	28

Table 2 shows the self-reported stress manifestations of the participants. Table shows *mean score* of 2.22 for *numbness of the hands* felt within the past week, *mean* of 2.12 for *movement of the pupils of the eye*, 2.26 for *muscle trembling*, 2.97 for *headaches*, 1.82 for *pulse movement*, 2.45 for *loss of appetite*, 2.88 for *sleeplessness*, 2.66 for *feeling fearful* and 2.78 for *feeling insecure*. The mean scores reflect leaning to the center or the average of stress manifestation. The *sd* ranging from 1.07 to 1.41 presents the almost equal distance of scores to the mean, which means that the participants consistently respond to the items. The cumulative percentage of mean scores ranging from 22 to 53 presents low to moderate intensity of stress among the sampled participants. Findings reflect the participants' ability to handle stress as this is measured and self-reported.

Perceived Stressors

Participants were asked to check the things that make them stressed, ranking of the items are presented in table 3.

Table 3
Stressors Identified by the Workforce and Students

Stressor	**Checked response**	**Rank**
Day-to-day unavoidable situation	190 (60%)	1
Financial constraint	178 (56%)	2
Family issues	127 (40%	3
Relational, social, etc	58 (18%)	4

Table 3 presents the stressors perceived to trigger stress by the study participants. The stressors appear to be *day-to-day unavoidable situations* as the first in the rank, second is *financial constraint*, third are *issues within families* and last in the rank after scoring and analyzing the checklist refers to *relational, social and other matters* perceived by the study participants.

Interventions deemed helpful

Among the interventions deemed helpful to the study participants, after scoring and analyzing the checklist provided, table 4 presents the results.

Table 4
Helpful Interventions

Intervention	**Frequency**	**Percent**
Spiritual nourishment	46	14.4
Financial Support	36	11.3

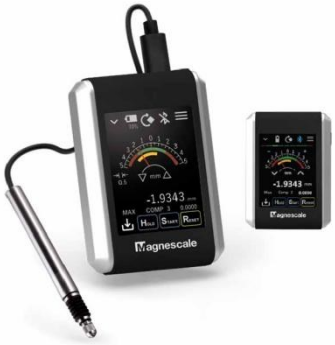
Counseling and psychotherapy	106	33.1
Psychosocial support	80	25.0
Psychoeducational support	49	16.3
Total	317	100.0

Table 4 presents the kind of support identified by the study participants to be helpful interventions to enable their coping well. Table shows *counseling and psychotherapy* ranking 1, followed by *psychosocial support programs*, then *psychoeducational supportthen spiritual nourishment* and finally *-financial support.*

Technology Support

Part of the questionnaire is suggestion of technology that may support this claim for measuring stress. Students identified *brain wave analysis*, *wearable sensors* and *behavioral tests* to this intent. Their illustrations are in the following figures.

Figure 1. Stress trackers



Discussion

Assessment of stress is itself levelling it off (Sanderson, 2020). Reflecting on one's feelings and thoughts enable a person to discern an appropriate or healthy action that would regulate such feelings (Chia-HUng Lin, et.al, 2022). This is appraisal of one's capability to handle such stressful event experienced. Coming to psychology experts is a great help to individuals suffering from stressful events. When a person asks himself what is such situation for him, he is already cognizing onto it (Sanderson, 2020). When he reflects what in him that may battle the situation, he is drawing within him his inner strength that will enable stress regulation (Anderson 2020). It takes an admission of the feelings to be helped well and not have a more intense stress.

Stressors are anywhere and they come in anyhow. It is significant to recognize and confront these to yield higher psychological well-being and maintain a healthy outlook in life (Bajwa, et.al 2019). The family, the day-to-day circumstances, the finances, relations and all sort- all these must be acknowledged and dealt well (Shandar & Reddy, 2022). While one cannot eradicate these, at most the control one may have would be highly significant to sustain his health and well-being by help-seeking. Identifying these triggers may push an individual to bravely confront life in all its ups and downs and be well (Carlson & Thomas, 2007).

When stress become severe, interventions may be somewhat late or become more complex. Prevention is much better than cure, thus the need to recognize the stress - the feelings, and the thoughts, and then come up with a confrontation of the stressors, accommodate learning

support, appreciate psycho education as all these will yield health and well-being that may be passed on to significant others or loved ones (Kooklhaas, et.al, 2011; Saxena, 2020).

Millenials are adept to technology, as blood pressure is measured thru an innovative device, so too is stress. Stress trackers may be developed and made accessible to people who are prone to stress (. As technology is fast moving, an improvized and innovative technology may be designed to measure stress more accurately and quickly (Goel, et.al, 2020). All that is takes is a concerned developer and authority to make things possible and do such care upon the humanity. This is innovation and technology that may be employed in the field of health and well-being.

Conclusion

The study concludes the significance of stress assessment, as it is appraisal in itself that bring about the benefits of cognition and objectivity to day-to-day circumstances. While stressors are ever present, these may be regulated by confrontation and treating them as normal part of life. Interventions may be preventive measures for health and well-being, and these may come in the form of counseling, psycho-education or related learning support. Technology is feasibly developed to track stress and fill in the need of times. An innovation may produce an infrastructure that regulates if not provide the most needed medication or intervention for the more intense stress levels.

Implications

Findings imply the appropriateness of transactional model of stress and coping by way of cognizing the kind of stress that comes as well as drawing one's resources in battling stress. In a wider view, health and well-being may be sustained as one is reflective and confrontive about situations. These situations may not be treated as stressors but rather normal part of life eventually as individuals would acquire the higher status of well-being. Technology advancement may equally address psychological assessment and later interventions. It only takes an innovative mind to design and develop a technology that will track and measure stress and eventually develop an intervention tool.

Limitations

The study may have been limited by the variables that were explored due to the timing of the study - pandemic rime. Also, the use of google form may have constrained the honesty and truthfulness of the results. Nevertheless, faithfulness to its commitment of descriptives are produced and herein reported.

Direction for Future Research

Future research may look into the design and the utility of technology developed to assess stress level as well as the values of individuals at work and in the society. Continuous innovation and development of technology that would be helpful to uplifting health and well-being of people must be of top priority.

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