
STIGMATIZATION AMONG FEMALE STUDENTS IN NATURAL SCIENCE RELATED COURSES: A CASE OF TECHNICAL AND VOCATIONAL EDUCATION TRAINING INSTITUTIONS IN TANZANIA

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ABSTRACT

Stigmatization in science courses in Technical and Vocational Education and Training (TVET) institutions affects female student's performance and can lead to severe consequences such as poor academic performance, anxiety, depression, truancy just to mention a few. However, in spite of numerous research on stigmatization of girls in education, there is relatively little research done on the nature of stigmatization among the female students, their ability to cope and coping strategies. The objective of the paper is to explore the nature of stigma experienced by female students and determine the coping strategies for the same. The study employed a qualitative strategy, drawing from 20 female students in-depth interviews from three TVETs. The study reveals that female students are stigmatised in the following ways; discrimination and use of abusive language by both male lecturers and male students or colleagues, female negative attitude towards science subjects, sexually, stereotyping and institutionally through rigid timetables and infrastructure. It was found that, the majority of the interviewees were capable of coping with the situation and the following were their strategies; developing confidence, working hard, cooperating with boys who are ready, seeking counselling services, find information through the internet, share the problem with family members, drop out from the stigmatizing institutions or transfer to another colleges. These coping strategies were found to bring positive results for those students who adopted them, in this case students facing stigma related challenges can make use of these strategies for increasing and sustaining the number of girls in science related courses.

Words: Stigma, stigmatization, female students, Science related TVET.

INTRODUCTION

Education is an essential tool for the liberation of individuals and national economic development. It is vital to the social, economic and technological development of nations (Abiogu, 2014). According to Adelakun, Oviawe & Barfa (2015) education enhances cognitive and non-cognitive skills, that are fundamental to the self-sustaining and self-generating process for positive transformation of a society.

In spite of the role played by education, its purpose has been changing over time. During the colonial times or era, education was provided for preparing individuals to work for the colonial masters (Masanja, 2010). After independence, the purpose changed as pointed out by the first President of Tanzania, The Late Julius Nyerere in the early 1960s as:

“Education is viewed as an instrument for preparing the community for life. It must foster the social goals and encourage the growth of the social attitudes and values. These include equality and respect..... Education must encourage the development of inquiring mind, and scientific outlook on issues; creativity, problem-solving, the ability to think for oneself, to interpret decisions, to learn from others, and reject or adopt it in accordance with particular needs and circumstances. Education.... Must impart knowledge and skills needed for family life and for participation in the development and maintenance of the community” (Masanja, 2010:2).

Therefore, education has continued to be fundamental to the wellbeing of nations and economic development. This is because, having educated citizens help in increasing productivity, reduce infant mortality rates and fertility rates, as well as improving education prospects of the next generation (Masanja, 2010). Education is a process through which

an individual or a person acquire knowledge for the realization of their potentials and make use of them for self-actualization (Adelakun *et al.*, 2015).

Technical and Vocational Education and Training (TVET) have been recognized worldwide as tools for empowering people, especially the youth, for sustainable livelihood and social economic development. Soyemi and Yusufu (2012); Sarebah and Hazleeza (2015) defined TVET as those aspects of education process involving, in addition, to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitude, understanding and knowledge related to occupations in various sectors of economic and social life. In this case, TVET involves other aspects of preparing individuals to participate effectively in the world of work and various occupational fields. It also enhances lifelong learning and the creation of good and responsible citizens as well as being an instrumental for supporting a sound environment for development and poverty alleviation machinery (Sarebah & Hazleeza, 2015).

According to Sarebah and Hazleeza (2015), TVET has become a necessity for every individual so as to play an important role in the 21st Century that hunts for narrowing economic and gender disparities while preserving the integrity of the environment. Hence, equipping women with TVE is crucial for their empowerment since women play a big role starting from the family, as education of a child starts at home, and a mother is the first teacher for her children. Therefore, educating a woman has a multiplier effect (Adelakun *et al.*, 2015) narrates that by educating a man means you have educated an individual where as educating a woman means educating a whole nation.

According to the URT (2015), women and men (age 15+) literacy rates in Tanzania stands at 71.9% and 81.8% respectively in 2010. Despite, the low level of literacy rate among females compared to men, their enrollment in further education levels, including TVETs falls at 47.5% (URT, 2013). The report argue further that there is also a significant gender imbalance in enrolment in science and technology related programmes, whereby female students in these programmes constituted only 11-19% by 2010-2011.

In addition, Masanja (2010) claim that the culture of marginalizing and discriminating women in education continues to be a normal trend till today, especially in science, mathematics, and engineering subjects in Sub-Saharan Africa (SSA). This is further evidenced by Adelakun *et al.* (2015) and OEDC (2011) who observed that females are under-represented in Technical Education programmes that prepare students for higher paying occupations such as Science, Technology, Engineering and Mathematics (STEM), skilled trades, and in other occupations traditionally branded as male jobs. Furthermore, Siann and Collaghan (2010) argue that, the pattern of female underrepresentation in science is a problem of both underdeveloped and developing countries. This, in turn, reduces female economic empowerment hence continue to be a marginalized group in the society.

However, efforts to reduce gender parity in education started far back in the 1940s at the global and national levels (Masanja, 2010). Recognizing the role of women, in 1946, the United Nations established the Commission on the Status of Women (UN-CSW) that aimed at bringing gender equality and advancement of women in the UN member states (UN, 2013).

The International Conventions related to gender equality and access to education include; Convention on Elimination of All Forms of Discrimination Against Women (CEDAW, 1979); Beijing Declaration and Platform for Action 1995; SADC Declaration on Gender and Development aiming at enhancing access to quality education and removing gender stereotyping in the curriculum; the Dakar Framework for Action (2000); Sustainable Development Goals (SDGs 5, 1), all of which aim at ending all forms of discrimination against women and girls everywhere (UN, 2015).

Moreover, respective UN member countries enacted and implemented various programmes and projects to redress the gender gap in education. In Tanzania for example, efforts to fight gender parity, started through Education For All (EFA) programmes UNESCO (2015) of which among its goals aimed at improving access and gender equity in education. In keeping with the education Vision that is geared to the provision of equitable quality education and vocational skills to all, the Government of Tanzania (GoT) had put in place a number of Policies including the Education and Training Policy (ETP 1995), The Technical Education and Training Policy of 1996 and the National Higher Education Policy of 1997 all of which were aimed to improve access to and educational equity for Tanzanians.

In line with these, various programmes at different levels were established. These include Primary Education Development Programme (PEDP) and Secondary Education Development Programme (SEDP) which were aimed at reducing gender parity in access, and tackle issues of equity and quality in education (URT, 2010).

Other initiatives and strategies at individual higher learning institutions include Transformation Programme, of the University of Dar-Es-Salaam in 1996 which was aimed at, among other things, to expand female student enrolments in science and engineering programmes through a special upgrading programme prior to admission (Masanja, 2010). The pre-entry programme aimed at increasing the number of female students in science and related fields through six weeks upgrading remedial programme that improved their academic capacity and confidence. In addition, other colleges such as the College of Business Education (CBE) through its strategic plan aimed at reaching 50% enrollment of both boys and female in its programmes. Out of this strategy CBE was able to achieve 50% representation in non-science programmes, where in some programmes like marketing female students outnumber male students but not in science related ones (CBE Strategic plan, 2015).

Despite the different policies, programmes and strategies for reduction of gender parity and the increase in accessibility to education by all, the GoT has been able to achieve a 50% enrollment at a primary school and secondary school ordinary levels (URT, 2016). However, the Economist (2013) reported that, in SSA, female students continued to have poor participation in secondary and tertiary levels of education. Moreover, according to UNDP (2014) report, girls (66.4-68.8%) completing primary education are more compared to boys (64.9%). However, girls represent 40% of the university enrollment and their proportion in science and engineering stand at 24% (UNESCO, 2011-2015). Generally, female students lag behind in educational achievement and accessibility in secondary and tertiary education due to various impediments. These factors are: inadequate female TVET lecturers; strict selection and entry requirements; absence of female role models; masculine image of TVET portrayed in textbooks, media and popular assumptions; poor TVET facilities; lack of female TVET lecturers; discrimination made by male TVET lecturers; peer pressure; physical facilities and hours of instruction; gender biased curriculum materials; poor public relations practice by administrators; and lecturers of technical education department (Sian & Callaghan, 2001), preexisting stereotyping and discrimination by colleagues (Van Tooke, 2014). Indeed, female students at various educational levels face social and cultural constraints notably, existing stereotypes, discrimination, gender roles and attitudes as well as institutional barriers which include but not limited to competition, qualification, curriculum, pedagogy, infrastructure, lack of women scientist role models to mention but just a few (Masanja, 2010; Alison, 2012). Sian and Callaghan (2010) also argued that interventions to reduce gender parity are interfered by beliefs that, Science, Engineering, and Technology (SET) is more natural to males, but not females, that adversely affects the participation of female students in the SET.

Previous researches such as Sian and Callaghan (2001); Adlakun, Oviawe, and Barfa (2015) identified contributing factors to female under-representation in STEM, however, the role of and nature of stigma experienced by female students in TVETs in Tanzania have not been well researched. Therefore, the overall objective of this paper is to explore the nature of stigma experienced by female students and determine their coping strategies. Specifically, the study intended to find out ways of which female students are stigmatized how they cope and suggest ways of reducing stigmatization in science related courses in TVET.

THEORISING COPING WITH STIGMA

In this study the stress and coping model to stigma-related stress and coping described by Miller and Kaiser (2001) is used to explain the coping strategies among female students in TVETs in Tanzania.

According to Farlex (2012) stigmatization means the assignment of negative perceptions to an individual based on perceived difference on physical appearance that include race or sex, or a state of mental or physical illness, or other qualities from the population. In this study girls in science-related subjects in TVETs are regarded as being incapable of handling such courses based on their femininity since those courses are articulated with masculinity (Sian & Callaghan, 2001). Stigma is referred to an attribute that results in prevalent social disapproval, a discrediting social difference that yields into a 'spoiled social identity' (Bos, Pryor, Reeder, & Stutterheim, 2013). The spoiled social identity results into a variety of stressors (Miller & Kaiser, 2001). A stressor is an event in which environmental or internal demands tax or exceed the adaptive resources of the individual.

According to Miller and Kaisaer (2001), stigma when looked in the form stress it may affect a stigmatized person in a number of ways including psychologically, socially and biologically. The consequences of stigma on a stigmatized person include ego defence, low self-esteem, external locus control and depression (Bos *et al*, 2013). Importantly, stigma as a cause of stress, calls upon the different ways of which the stigmatized persons overcome such stresses.

Model of Stigma

The study utilizes a Stigma related Stress Responses and Coping Model adopted from Miller and Kasaer (2001) to assess how female students in science related courses cope with stigma. It has theorized that stigmatized persons can variously respond to stigma-related stress that includes psychological, cognitive, emotional and behavioral ways. This model state that, responses of stigmatized persons are categorized into voluntary coping responses and involuntary responses. Coping according to Miller and Kaiser (2001) is referred to be a "conscious volitional efforts to control emotion, thought, behavior, physiology and an environment in reaction to stressful actions or circumstances". It is also stressed that not everything that a stigmatized person does involuntarily in response to stress is related to coping with stress. Even though both voluntary and involuntary comprise engaging and disengagement coping strategies, whereas engagement coping strategy is aiming at attaining either primary or secondary control against the stressful experience as illustrated in Figure 1

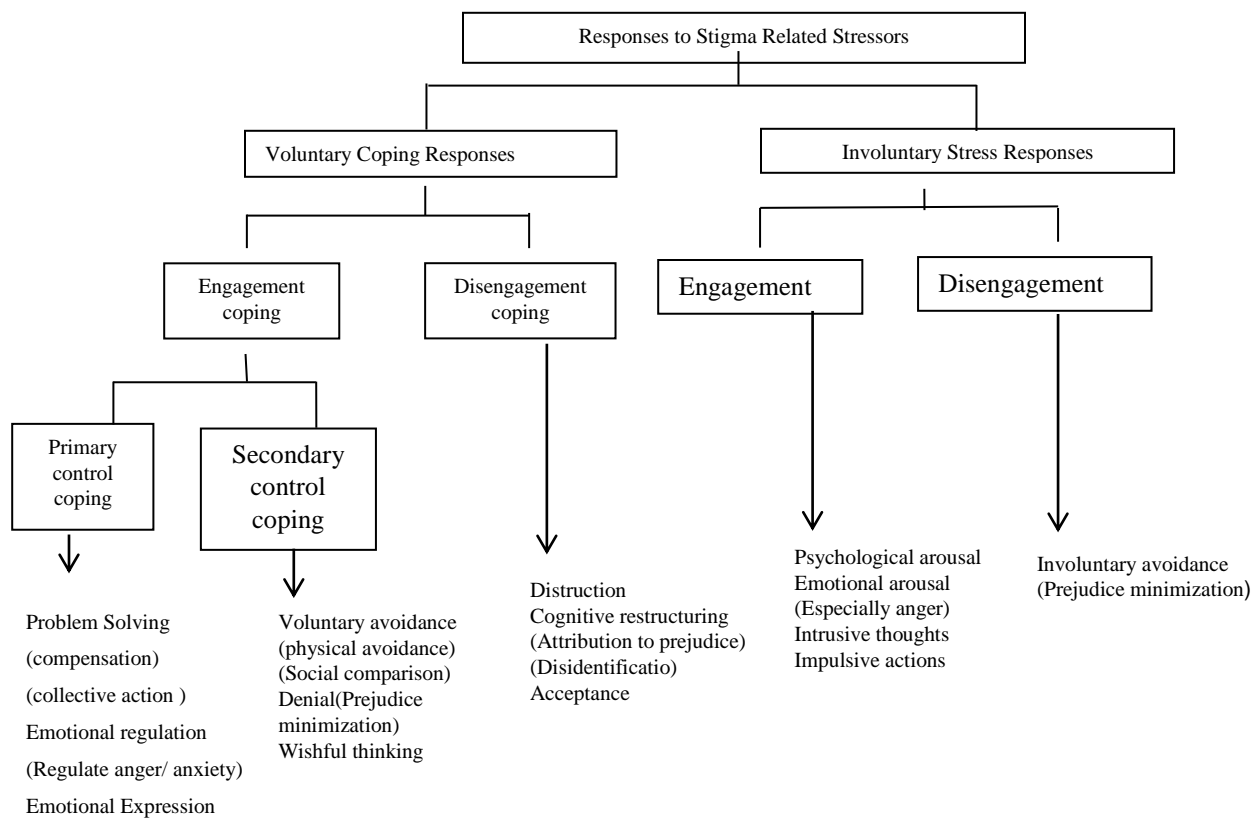


Figure 1. *Stigma related stress and coping model*, Source: Miller and Kaiser (2001)

Voluntary Coping Responses to Stigma

Engagement

Engagement coping strategy generally aimed at attaining either a primary or secondary control against a stressful situation. Whereas the primary control coping means is being able to change the stressful situation, secondary control coping engage into a stigmatized person adapting to the stressful situation Miller and Kaiser (2001).

Secondary control coping encompasses responses such as distraction, cognitive restructuring, and acceptance. Distraction involves cognitive and behavioral actions that withdraw a stigmatized person from the stressful situation. Cognitive restructuring means redefining the meaning and position others place the stigmatized people by framing their belief different from how they are being stereotyped. Another form of cognitive restructuring is the devaluation of domains in which one's group specifically the stigmatized group is believed by stereotype to be incapable on certain values. In this case, a person disidentifies from his/her group by taking actions that refute the situation attached to his/ her group. Another action to attain a secondary control against a stressful situation is acceptance. This means that the stigmatized persons live with a situation as part of their life. However, it is believed that this action affects the stigmatized person adversely as it inhibits collective action that might lead to change on the side of the society.

Primary control coping involves problem-solving, emotion regulation and emotion expression. In case stigmatized people can employ primary control over stressors related to stigma either individually or collectively through coping strategies such as problem-solving, emotional expression and emotional regulation are believed to be dangerous in attaining primary control through compensation. Compensation entails a stigmatized person adapting one's social interaction strategies in order to achieve the desired goal even in the presence of the prejudice. Likewise, problem-solving, emotion regulation and emotion expression also are viewed necessarily in taking collective action in order to change the status quo.

Disengagement coping

Disengagement coping involves avoidance, denial and wishful thinking. Avoidance coping might be physical or social disengaging of a stigmatized person from the stigma related stressors. In this regard, stigmatized people will be associated with either stigmatized people or non-stigmatized people whom will not be stressed with. Denial is another coping strategy where the stigmatized person avoids stress by negating the existence of the prejudice and discrimination. On the other hand wishful thinking is believed to reduce stress on the side of the stigmatized person as the stigmatized person wish that those in power are disposed towards stigmatized people and therefore would not discriminate against them. According to Alpert (2013), wishful thinking allows a stigmatized person to avoid discomfort, stress, change, anxiety and pressure.

Involuntary coping responses to stigma

Physiological arousal, emotional arousal, rumination, intrusive thoughts and impulsive actions are ways by which a stigmatized person might employ in coping involuntarily with stigma-related stress. These coping strategies are accompanied with actions such as rising in blood pressure and anger when a stigmatized person encounter a stressful situation. Intrusive thoughts are a response to effects of threats of stereotype, where a stigmatized person think of confirming to the negative stereotype despite its effects on one's performance and anxiety creation.

Disengagement responses

In this case, a stigmatized person avoids thoughts of prejudice at the pre-conscious level and that, thoughts of prejudice do not enter the conscious of the stigmatized person.

It is important to note that there are other coping strategies that may be used to solve multiple stigma related stressors and thus these kind of strategies could not be placed in either of the categories. For example, Seeking for support that could be seeking for information, emotional support or instrumental help (Gembeck & Skinner, 2008). According to Miller and Kaiser (2001) seeking social support cater for multiple roles; as it may help stigmatized people to solve problems, provide them with a way to express or vent their emotions, help them redefine the stressful event or destruct them from the event. In this case, it has been very difficult in positioning it in the model, it is a strategy that spans a wide range of strategies. This is because some of the strategies falls under engagement coping (problem solving and emotional regulations) and some under disengagement (distraction and cognitive restructuring) coping strategies.

METHODOLOGY

The study employed a qualitative strategy, drawing on 20 in-depth interviews, including 20 female students from three TVETs institutions of College of Business Education (CBE), Dar-Es-Salaam Institute of Technology (DIT) and

Institute of Finance Management (IFM). Out of 20, 15 interviewees were face to face and 5 through telephone. The Interviewees were obtained through convenience and snow-boll sampling technique drawn from female students persuing Diploma and Bachelor degree in Legal Metrology (Measurement Science) and ICT, Computer Engineering, Electrical Engineering, Computer Science, Civil Engineering and Information Technology. Convenience sampling technique is a method used to draw a sample by selecting people due to their ease of their availability. Whereas snowball sampling techniques was used by a researcher to select participants who recruit others where the potential participants are hard to find. Snowball was used because the students were on leave so the college government officials gave researchers cell phone numbers for those students whom they know will cooperate well in the study. Data were analyzed qualitatively based on categories and emerging major themes.

FINDINGS AND DISCUSSION

Data were analysed and the nature of stigma emerged or recorded were discrimination, use of abusive language, attitudinal issues, sexually oriented, existing stereotypes and institutional based stigma. Categories of coping strategies observed or expereiced were developing confidence, working hard, cooperate with boys who were ready or supportinve to females students, seek counselling services, use internet to search information on how to cope with situation and learning from others experiences. Other coping strategies were sharing the problem with colleagues or family members, dropping out of school or transfer to another college and through group discussions.

Ways of Stigmatisation

Discrimination

Respondents reported of being discriminated by both male colleagues and lecturers. Two female students reported being treated differently by their lecturers compared to their male counterparts. This can be explained in two ways that are issues of inequalities and sexual exploitation especially for girls.

Inequality

Inequality brings in about discouragement among students who are discriminated and this can further result into failure, drop out, reduced confidence or discourage others from joining such courses. In this study, respondents have shown a concern that they are not equally treated by their lecturers. As one respondent said that, “...boys are given more books than us, also male students are given more explanations and assistance in case of failure to understand a concept...”. Van Tooke (2014) had a similar observation that female students in STEM are discouraged by discriminating professors. This is also evidenced by Adelukun, *et al.*, (2015) who claim that wrong perceptions, assumptions, and attitudes of male teachers are among challenges of training females in TVET. Blickenstaff (2005) argue that previous research has revealed that girls receive less attention than boys from their teachers. Also, student-teacher interactions are different across different sex as boys are asked to follow up questions and comments for their works while girls received compliments on how they appear and the neatness of their works.

Respondents also reported to have not been allowed in male groups and their contributions are not valued by their colleagues as two students commented, one said “*they don't allow us to their groups, ...they don't want to be corrected*“ and another added “*they don't listen to us, as one boy told me that, keep quiet, you don't have a point*”. These practices might affect female students achievements as they are denied a chance to share experiences and lose confidence even on issues they believe they are competent in.

Sexual exploitation

In most societies, women or girls are taken to be instruments for pleasure, and this has affected women or girls in different contexts education being one. This is also evidenced by Warrington and Younger in Blickenstaff (2005) who found that girls are still confronted with the sexiest attitude from their male science teachers and low prospects in their course attainment. In this study issues of sexual exploitation have been raised, as one of the respondent explained “*you see, when a male student fails a test is given another chance to repeat, but if this happens to a female student they use this opportunity to seduce or exploit her sexually*” and another one reported that “*...approached by teachers if you refuse they fail you*”. The other one noted, “*...boys touch you on parts of the body such as buttocks or breast...*”.

Significantly, the issue such as sexist language and sexual insinuations arose. Respondents pointed out that, girls are approached by many boys to make them loose in academics as one of them commented: “*if a boy wins a girl he*

badmouths her and instruct others to try their luck". While others, use the money to seduce female counterparts to enter into a sexual relationship for the same purpose. These practices lead to the destruction of female students' confidence thus affecting their performance and course choices. This is evidenced by one respondent who pointed out that, "...boys use the money to get girls into sexual relationships to make us fail..." on the same issue another respondent commented that "...approached by many boys in a class being a girl it is discouraging..."

These discriminatory behaviors impinge negatively to girls and might lead to psychological effects that lead to the poor concentration that further lead to failing and sometimes drop out. UNESCO (2015) report notes similar effects of discriminatory gender norms and stereotypes –shown in teaching and learning resources and practices that can damage learners' self-esteem and impede on girls expectations and achievements.

Use of abusive language

Abusive language emerged as one of the causatives of stigma as used by male students and lecturers. Three respondents revealed that they were being abused verbally "*you are too soft for the course, will you manage programming?*" and that "*you look like a man*". It was reported by the interviewer that, if it happens that a female is poorly performing, she is told "*the course is not for you, find cheap courses*" another student when registering for the ICT course was told that she was too beautiful for the course, she deserves to belong to courses such as marketing or business administration.

Attitudinal stigma

Generally, it was revealed that female students stigmatise themselves by believing that the courses are too difficult to handle, or it will be difficult to get married and work as they adversely affecting their confidence. This also agrees with the results of Goodale (1990) who argued that, women's attitude about their own roles and capabilities influence their entry in some technical fields as they lack confidence and have a negative attitudes towards science and technical subjects.

Existing stereotypes

The issue of stereotyping was observed to be a concern by the majority of the female students and this stem from culture and socialisation of individuals in the society. Due to this, women are portrayed to be weak, inferior and their counterparts as strong, masculine and superior. Responses such as it is for men, jobs are masculine appeared repeatedly as one respondent said "*...science courses are for men...*" another one noted "*...engineering jobs are male oriented...the activities are masculine...*", "*...the type of works are masculine like climbing up....*". Van Tooke (2014) mentioned that one of the reasons hindering female students in taking sciences is pre existing stereotypes.

Institutional arrangements

Institutional arrangements have been perceived as discriminating factors. For example, issues such as time spent in school, infrastructure and laws governing college life. Respondents raised concern on the time spent in schooling until a person get a respective job to be very long. This is evidenced by one respondent's argument that, "*...it takes long to study until you get a job...*". Time has been seen in a different perspective that, science students spend more time daily at college as compared with other students and this denies them time to socialise, as one respondent stated "*...as young we also need time to recreate...*".

Gender sensitive laws and regulations, policies and infrastructure has been observed by the interviewed science students to discriminate girls in TVTEs as one respondent points out that "*...there are no specific laws that protect female students...*". This, further, leads to the female not reporting issues of stigma to authorities instead they share their problems with those they think sympathize with them like family, friends to mention a few. This finding is in line with the findings by Ayonmike (2014) who revealed that female students are affected by both school and governmental factors. One of the governmental factors include policies and school factors include poor infrastructures such as poor learning such as library, classroom blocks, workshops, laboratories and recreational facilities. Adelakun, *et al.*, (2015) had similar results that poor facilities is a challenge on training females in TVET.

Coping Strategies

The majority (87.5%) of the respondents revealed that they are able to cope with the situations except for one who was afraid of being failed. Coping strategies as pointed out were;

Developing confidence

Developing confidence was reported by the majority of the respondents (25%) as a way of dealing with stigma among girls in science related courses. In this case, since it has been reported by the majority it is believed to be the strongest coping strategy. Sentences like “...*be confident...*” “...*becoming confident...*” “...*having confidence...*” were frequently recorded. According to Figure 1, this strategy is related to secondary control coping strategy which involves cognitive restructuring in the sense that a stigmatised person redefine the meaning and position others place him or her. Murgor (2013) is emphasizing the importance of self-confidence to be among the skills that when combined with technical competencies will lead to more women in the science programmes and jobs.

Working hard

Similar to developing confidence, working hard has been observed to be a strong mechanism (25%) in coping with stigma. This strategy has been reported with a reasonable number of respondents. Comments such as “...*work hard...*” “...*you need to study hard...*” “...*working hard...*” supports this generalisation. Based on the stress-coping model, this falls under cognitive restructuring in secondary voluntary coping strategy domain, whereby a stigmatised person disidentifies from his or her group by taking actions that refute the situation attached to his or her group. In this case, female students in TVETs opt to work hard in order to change their academic situation as stereotyped.

Cooperation with boys or girls

Two among the respondents had the opinion that, in dealing with stigma cooperation can also be one among many strategies. Cooperation can be with boys who are ready to do so or otherwise with fellow girls. The two respondent argued that, “... *I looked for those boys that were willing to cooperate with me...*” “...*girls can work together later after classes ...*”. This strategy falls under voluntary disengagement that involves avoidance as shown in Figure 1. In this regard, a stigmatised person will only be associated with either fellow stigmatised people or non-stigmatised ones. By choosing to cooperate with only boys who will act as stressors to them; or fellow girls as they belong to the same group.

Seek counseling services

Only one respondent used this strategy in course of dealing with stigma as her father used to hire for her a counselor from the University of Dar-Es-Salaam “...*my father usually bring in a counselor from the University of Dar-Es-Salaam...*”. Despite this “...*my father was supporting me ny hiring a councillor who usually adviced and encouraged me...*”. In coping with stigma stressors, literature categorize this strategy as seeking for support. Primarily, having others support, creates a safe environment for stigmatised people to express their emotions from stressors (Miller and Kaiser, 2001). Nawe (2002) have the same opinion that setting up and supporting counseling services to handle gender-based psychological pressures within the first year is one of the strategies to redress the gender imbalance in science causes. Ayomike (2014) also recommended that professionals should organize occupational and vocational counseling program for girls.

Use of Internet

One respondent observed the importance of the internet in finding information on how others cope with stigma. The respondent stated that “...*I use the internet to learn how people from other countries cope...*”. This coping strategy falls under seeking support, which is in this regard, female students use internet for obtaining information that may help them to cope with stigma related stressors.

Sharing the problem

In this study, respondents show that sharing the problem with classmates, parents or family and college authorities play an important role in dealing with stigma. One respondent reported, “...*my father is an engineer so he usually encourages me and in the case of anything I normally share the problem with him...*”. Other two respondents revealed that they normally share the problem with colleagues or family members “...*report to class representative...*”, “...*share with classmates...*”. On the other hand, two respondents saw it wise to report the issue to the college authorities like matrons’ or warden and to the Dean of Students “...*report to the dean of students...*”, “...*reporting to the warden...*”. The coping strategy belongs to the seeking support category where a stigmatised person seeks comfort either from the family or authority. In this regard, Miller and Kaiser, (2001) noted that problem-solving especially collective efforts help in bringing changes in the society, or demands against

discrimination depend on having social support. A research by Gembeck and Skinner, (2008) argues that, children often seek support and guidance from their peers, while adolescents aging from 10 to 16, normally seek support from adults, as they grow older. In this study, it can also be established that even the young adults including adults in colleges still turn to their peers or adults for emotional support.

Generally, parents play a big role in building their children's academic interests. Hafiz, Tehsin, Malik, Muhammad and Muhammad (2013); Shaun and Jennings (1998) demonstrated that students whose parents had a high level of involvement in their academic activities had a high level of academic achievement. In this regard, parents may have a big impact on their children career choice as also been observed in this study that, those female students whose family background are science and technical related, their choices were influenced by this and are also more encouraged and supported. Similarly, one respondent reported the influence of her father's background in engineering on her career in Information and Communication Technology (ICT). Sarebah and Hazleeza (2015) observed the same pattern and emphasized on the role of parents as a determining factor in their children interest and career choices. Parents interests could be passed to their children and influence them to technical careers.

Drop out of school or transfer to another college

One respondent suggests that drop out or change of college could help in coping with the situation. “... *some people decide to quit from studies... some decide to shift to another college...*” support this argument. In relation to Fig 1. this coping strategy can be placed under disengagement voluntary avoidance with physical avoidance as its mechanism. Zimmer-Gembeck and Skinner (2008) also describe this coping strategy as an escape where there are behavioral avoidance that are associated with drop and roll behaviours. Although, this is observed to be a weak coping mechanism as dropping out means terminating from studies and would not be encouraged. Moving to another college is also not a solution to the challenge as the study was conducted at three different institutions and encountered stigma in all the institutions, running from one college to another will not make a difference. This is evidenced by Miller and Kaiser, (2001) noted that disengagement coping responses have an overall poor track records as they are related to increased psychological distress including maladjustment and physical symptoms.

Therefore it is encouraged to have more strong strategies such as seeking for counseling services (Nawe, 2002), or college authorities and science teachers, might use the expert influence technique and these could be women role models or even teachers themselves to change the stereotypes that affect adversely girls attitudes towards science careers (Selimbegovic, Chatard, & Mugny, 2007). The findings by Wanyonyi (2014) showed that majority (43.1% strongly agreed and 27% agreed) of the respondents joined technical institutions were influenced by their parents. The research by Leung, Wright, and Foster (1987) argue that parental concern and encouragement for school achievement is a very important source of influence on adolescents' post- secondary career.

Group Discussions

One respondent suggested that group discussion might be one among many coping strategies that can reduce if not doing away with stigma. The respondent further said that discussion might be done to the extent of making the defendant apologize. A statement like “... *you discuss the issue in a group of fellow students to the point that the defendant makes an apology...*” This will create harmony among students as well as improved confidence of the respondent. This result had not been reported in previous studies, this suggests that it is particularly placed in a Tanzanian context and thus it is the contribution of this study in the academic arena. This strategy can also be placed under seeking support category. According to Zimmer-Gembeck and Skinner (2008) girls often use social support than boys when it comes to overcoming stress, they also use multiple coping strategies in dealing with stressors. This finding was supported by a study by Ramya and Parthasarathy (2009).who reported that, female students adopted more emotional focused strategies and sought more social support as compared to male students. Female students when faced with stigma they talk to a friend who can do something on the issue, analyse the situation a bit and come out with a solution to a situation. Sometimes they counsel each other by believing that things are not that much bad as expected to be.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Despite the importance of TVETs to individuals and nations, women are lagging behind in access and achievement especially in science and technology arena. This is attributed to socio-cultural and institutional barriers that lead to

stigma. Students seem to cope with the situations and that girls in this study used a wide range of strategies to cope with stigma related stressors, whereby seeking for social support was observed to outweigh other responses to stigma related stressors. These coping strategies were found to bring positive results for those students who adopted them, in this case students facing stigma related challenges can make use of these strategies for increasing and sustaining the number of girls in science related courses.

Recommendations

Stigma is a touching situation and if avoided will help to increase the number of female students in science-related courses. Therefore, the study suggests a number of recommendations for both practice and policy. Empowerment plays a vital role in changing societies, in this regard, reaching out children from a young age is important for breaking gender stereotypes. Establishment of peer mentoring programmes to boost female student's confidence, establishing and strengthening guidance and counseling services. Others include formation of gender clubs to cater as a platform of airing views and a learning ground, inviting female role models to encourage female students and lastly, lecturers need to be gender sensitive in the methodology and language used in class, parents have to socialize their children to treat each other fairly also value decisions and capabilities, formulation and promoting of proper policies that brings harmony in schools and colleges that will inform decision makers.

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