Siblings' Birth Order Interaction and Self-esteem Development: Forgotten Social Setting for e-Health Delivery in Tanzania?

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Abstract

Family and social interactions like those among siblings are important for a child's development. Every child born in a family has one's personality and hence self-esteem different from other siblings. Due to much outcry of low self-esteem, demoralization and corrupt conducts of health and information and communication technology personnel in Tanzania, the present study examined the association between siblings' birth order interaction and self-esteem development and their influence in enhancing reliable e-health delivery in the nation. A total of 183 second year undergraduate participants from the College of Health Sciences and the College of Informatics and Virtual Education of the University of Dodoma were purposively selected for the study. Data were collected using birth order and Rosenberg's Standardized self-esteem questionnaires and descriptively analyzed in percentages and frequencies using SPSS version 16. Findings revealed that siblings' birth order, social and family interactions affect their self-esteem, school and university social lives. The interactions enable health and ICT career professionals to have commitment and interactive personalities to facilitate preparation of responsible and committed student-professionals with proper self-esteem and ethical conducts for effective e-health service provision.

Key words: E-health, Birth order, Career development, Professional ethics, Self-esteem development, Social interaction, ICT, Tanzania.

1 Introduction

Social interactions of individuals in their families, schools/ colleges, their birth orders and psychological personalities are important in shaping them for their future careers. Additionally, the family's level of knowledge impacts the direction of their young children in career pursuits. Due to economic challenges (Buchholz & Blossfeld, 2012) and the changing composition, structure, and dynamics of families (Demo & Acock, 1996; Kreider & Ellis, 2011), recognizing and understanding family influence on adolescents' career choice is important (Bates, 2015). These dynamics may mould individuals and make them be attracted to careers for monetary search and extrinsic motivation or for serious work with full commitment and devotion through intrinsic motivation

(Krumbotz, et al, 1976; Szymanski, et al., 1996). In contrast, lack of self-motivation is likely to hinder self-commitment among individuals in workplaces.

One of the great constraints is the little attention and lack of seriousness in personnel's professional training. Most people and career experts have left the demand for career development to the discretion of an individual and his immediate family, and to a lesser extent, to teachers in schools who unfortunately are not versed in career development knowledge (Shayo, 2011). Instead, much focus has been put on job creation and attainment but not on individual's personalities, self-satisfaction and productivity (Lazarus & Ihuoma, 2011; Ibrahim, Aloka, Wambiya & Raburu, 2014). Poor guidance and counselling among young people in career selection may further cause wrong career determination and satisfaction if they fail to succeed in their life dreams.

2 Background to the problem

The impact of poor handling of social interactions of the youth towards forming strong patterns of their related personalities for career undertaking is serious, particularly in many service providing sectors like health and information and communication technology (ICT) (Sikika, 2012; Mpembeni, Bhatnagar, LeFevre, Chitama, Urassa, Kilewo, Mdee, Semu, Winch, Killewo, Baqui & George, 2015). It has led the careers to suffer from serious lack of commitment and self-esteem among their workers leading to poor and unprofessional conduct in provision of services (Bahalkani, Kumar, Lakho, Mahar, Mazhar & Majeed, 2011; Mpembeni, et al., 2015; Katongole, Mugisha, DDM, Bikaitwoha & Wampande, 2015; Eliamani, Richard & Peter, 2015). This may lead to what is taking place now in Tanzania where unsatisfied health provision is apparent.

Succinctly, the limited provision of health care services in Tanzania and other parts of the third world has triggered acute need for technological intervention for easing provision and delivery of health services (Appari & Johnson, 2008; Eunus, 2008; URT, 2013b). Therefore, the establishment of e-health services is required to curb the problem by offering enough and reliable services to people, including the remote areas with acute shortage of reliable health facilities and personnel (Appari & Johnson, 2008). Nevertheless, despite this remarkable trend, there is a need to link the psychological personalities of our health and ICT experts (Elias, Mukela, Rulagirwa, Swai, Danford, Perera & Darcy, n.d.). Additionally, self-esteem and personal satisfaction basing on birth orders prior to the health and ICT students joining the work places need to be addressed (Nhandi, 2011, 2014). This implies that it is important to examine the birth order, self-esteem, family/social interactions and students' placement for career undertaking in order to guarantee proper placement based on their birth order personalities' to match related career calls (Adler, 1964). Such placement, if well done, may help to adjust and address the family role towards guiding the youth in the right career selection and success.

Consequently, the impact of little attention to birth order personalities in Tanzania is likely to create a general trend of reproduction of similar occupations. Siblings from parents of a certain career occupation are likely to join such a career, while those in other fields are likely to be attracted to that other choice. This commonly happens in Tanzania as experience shows. Within the Tanzanian context, very few parents are accustomed to preparing career pathways for their children or young followers due to economic, cultural and social limitations occasioned by elements such as values and norms. Given this context, on one hand, it is very likely that children from poor peasantry households will remain peasants as an observation and imitation from their parents or older siblings

as their pacemakers. On the other hand, it is children and in this regard, students from economically better off families with distinctive professional careers like engineering, medicine, law and teaching that are likely to be in those careers, respectively. If this happens, the birth order personalities and their impact on students' self-esteem development and appropriate health and ICT career choices may be neglected and the continued dissatisfaction and unprofessional conduct will persistently continue.

In order to address the problem of acute shortage of health and ICT personnel in delivery of services in Tanzania, many people are being trained and graduate in various educational institutions such as colleges and universities (The University of Dodoma [UDOM], 2015a:126,138; 2015b). Due to the need of health and ICT professionals, many organizations and institutions train students to graduate and work in these specified fields. UDOM is among the institutions in the nation that are seriously preparing health and ICT professionals to help address the acute demand of health and ICT service delivery. For example, since its establishment in 2007, UDOM has been making decisive efforts in training and producing health and ICT experts (UDOM, 2015b). Despite these careers being prestigiously competitive and attractive to academically highly performing students in colleges and universities, they are still occupied by workers whose professional codes of conduct, motivation and self-esteem are not welcome to clients (Mwaita & Owor, 2013; Sikika, 2012). It is also argued that self-esteem development requires an individual's assured high social and cultural interaction in a motivating social environment and is a useful link to integrate the process and organizational approaches to career development (Gottfredson, 2002). However, such situation may require careful handling and direction to the youths following positive family and other social interactions in their immediate environments.

As an indicator of its core purpose, e-health is defined differently by different scholars. It is the cost-effective and secure use of ICT in support of health and health-related fields including healthcare services, education, knowledge and research (URT, 2013a). It should ensure that correct health information is electronically and securely provided timely for the purpose of improving the quality and efficiency of healthcare delivery and prevention programmes to those in need (URT, 2013a). For hospital care setting, Eunus (2008) defines e-health as all systems such as those dealing with electronic patient administration, laboratory and radiology information, electronic messaging, and telemedicine.

With all these establishments, it is important to evaluate an internet health service provided by authorized health personnel to associate their professional training with the effective delivery attributes (Christiansen, 2007). Due to an alarming insecure systems of patients' information care in many e-health providing facilities, it may be plausible to properly establish the identity, responsibility and accountability for the service one is entrusted with including the need for one to have website license to ensure professional handling of patients' privacy and information security (Christiansen, 2007).

Many health and ICT studies have not addressed the problem of moral conducts of their workers in relation to family and siblings' social interactions. Furthermore, since successful career selections and self-esteem development are determined by such social interactions, the impact of the siblings in relation to their birth orders and career development is keenly important and influential (Adler, 1964). For example, firstborns have a great role in either shaping or destroying the career interests

and motivational esteems of their subsequent siblings if the former fail in their life career undertakings. This is concomitant with Adler's birth order theory which maintains that firstborns have the highest self-esteem, committed and abide by the rules of a place unlike the later born siblings who tend to be less committed, fail to follow rules and ethics of a place or career and are rebels (Adler, 1964). The severe cases of corruption, absenteeism, language abuse and low self-esteem are likely to occur due to low attention given to students' sibship interactions and the birth order impact. These phenomena may have made the health and ICT careers have inadequate and unprofessional provision of services.

There are reported cases of poor care provision in health facilities encumbered with high demotivation, corruption and improper training and placement (Sikika, 2012). Similarly, the ICT field is not left uncorrupted. There are severe cases of information fabrication and leakage, moral misconduct through pornographic business and ailing of patients' information which ultimately make confidential and private handling of patients' information dwindle (Carl, et al., 2008; Appari & Johnson, 2008). Despite many studies addressing the significance and enabling conditions for effective e-health service delivery in many parts of the world, human related factors such as self-esteem and motivation are not mentioned (The AIDSTAR-Two Project, 2011; Busagala & Kawono, 2013; Kajirunga & Kalegele, 2015). This may partly pose a justification of the continued discontents among health and ICT personnel emanating from immoral and unprofessional conducts due to poor pay, hard working conditions and corruption.

The current study seeks to give some insights into on how siblings' birth order interactions influence self-esteem development and the importance of their impact on health and ICT career selections, particularly when the two career fields are linked for e-health service delivery (Elias, et al., n.d.). It therefore became necessary to examine the association between the birth order personalities and social interactions of the selected undergraduate students from the College of Health Sciences (CHS) and the College of Informatics and Virtual Education (CIVE) of UDOM. The aim being to associate the degree programmes they were undertaking with their birth order and self-esteem personalities for effective e-health service delivery and success in Tanzania.

3 Theoretical framework

There are two theories; Birth order theory by Alfred Adler (1964) and the Confluence Model by Zajonc and Markus (1975). The current study used both of these theories to produce an eclectic model.

Birth order theory: This theory maintains that the birth order of a child in a family has a great impact on his career decisions, commitment and self-esteem in the individual's life span. First born children, and so students, attract more attention, care and love from parents than the later born siblings. Parents tend to guide the firstborns thus building to them much self-esteem attributes. With that, the firstborn students tend to be very committed, and adhere to professional ethics and principles.

The Confluence Model: The Confluence Model maintains that the coming of many members in a family deteriorates their intellectual ability and favours more the firstborns than the later born siblings (Zajonc, 2001). This means that as many members are added, the parents' center of attention decreases on other children instead, the focus remains only on firstborns and lastborns.

This model is important to this study because most of the African societies are characterized large families and in some cases with extended families through birth or adoption. In universities, the participants selected for this study are likely to be exemplary subjects coming from families with many members; both youth and the grown-ups. These two theories are important in this study because they give the envisaged birth order attributes of the studied students and the role that family and social interactions may have impacted to these students by the guide of the Confluence model.

4 Literature review

A family is a basic unit that affects the direction of a child's career preference (Bates, 2015). If the families and the individuals recognize the influence of family dynamics in youths' career choice prosperity, there is likelihood to understand and control these influences, whether negative or positive, and in so doing, increase the youths' chance of successful career choices (Bates, 2015). This may further provide an insight into seeing how family ties will have contributed to the current professional personality attributes of the studied students in the two Colleges.

Critical challenges an individual faces from his surrounding community, parents and siblings may greatly increase or decrease such individual's self-esteem and hence one's self-recognition. There is the likelihood of children to develop orientations towards people depending on the type of home environments they are exposed to. They may migrate toward certain careers consistent with the developed orientations (Cox & Paley, 1997; White & Klein, 2008). For example, the children whose parents are more altruistic and interactive are more likely to develop high and positive self-esteem towards themselves and others, unlike the non-interactive and unfriendly families (Khanam & Rahman, 2007; Levinson, 1986). Also the siblings in a family can help themselves develop self-recognition if their families are social, cooperative, interdependent, lovely and kind. These interactions affect the life dreams of children as well as their self-esteem and careers.

The entrance or exit of individuals in a family changes the dynamics of that family and the behaviour among the family members (Cox & Paley, 1997; White & Klein, 2008). They argue that the attribute and contribution of each member in a family must be acknowledged as a part of what makes the family what it is. For example, while mothers are more likely to influence the career choices of their daughters, fathers may significantly and highly influence the male children (Cuiting & Kerpelman, 2007). Similarly, a child who is most favoured will affectively value the positive interaction with parents as key to his positive self-esteem, which is important for psychological and emotional well-being (Zervas & Sherman, 1993; Collins, 2006). There is a likelihood of associating the career personality attributes of the health and ICT students with the family's parenting effect on these students.

Further, children's higher self-esteem is likely to be influenced by the small size of the families in which firstborns benefit more before other siblings are born in terms of parental love, care and family resources as distributed and shared among the siblings (Collins, 2006; Wilson, 2002). They share the view that, children from small families surface with higher self-esteem than other siblings from large families. Later-born children do not receive as extensive attention as firstborns and often feel less appreciated, thus yielding to low accepting abilities and low self-esteem. The implications of these phenomena extend to as far as students in universities are concerned where it is noted that students with low self-esteem are more likely to join careers whose requirements do not match with their personalities, the end result of which such students are likely not to be satisfied in those

careers. Rosenberg (1979), for example argued, the drive to protect and enhance an individual's self-esteem greatly determines such an individual's thinking, behaviour and a reason for striving.

Given the impetus of high demand and search for employment in the world, and Tanzania in particular, there have been several concerns from governments and other employers towards creating more employment opportunities for the youth. However, the constraints still arise on the professional qualifications and the quality of education demonstrated by the youths and other individuals seeking employment. To add more pain to an injury, the economic, employment chances and options for the youth are worsening (Buchholz & Blossfeld, 2012). The central question that arises here is whether low commitment and poor conduct and performances of health and ICT personnel in their workplaces in Tanzania are due to lack of the personnel's proper guidance and counseling in their life career preferences during their college/university life basing on their birth order career personalities.

Since 2012, the Government of Tanzania (GoT) has established the e-health national strategy (2012-2018) with the aim of producing more positive outcomes through transformation of the health sector (URT, 2013a). This transformation, however, is thought to be possible if ICT is integrated to help, among others, by reducing the critical shortage of health service providers in remote areas or geographically disadvantaged areas and between health institutions (Eunus, 2008; Ruxwana, Herselman & Conradie, 2010). For example, GoT is envisioning opening up health facilities like dispensaries in each village (URT, 2003). Consequently, the need for ICT intervention in health sector to ease up effective service delivery between rural and urban areas by removing distance factor is paramount. This means that health services can accessibly be obtained electronically (URT, 2013a). It is anticipated that by 2018, e-health will enable a safe, high-quality, equitable, efficient and sustainable health system for all citizens in the nation for effective planning, managing and delivery of health services (URT, 2013a). This implies that critical and decisive joint venture is required to produce more but effective professional health workers to help serve in these vast needy healthy facilities.

Although health and ICT careers are linked so as to be able to attract unison for the demand of e-health services in the nation and other East African countries, there is high rate of cyber crimes (Mwaita & Owor, 2013). More so, the health career is also blamed by many people. In places such as Ethiopia (Lindelow, Serneels & Lemma, 2003) and Uganda, Bangladesh, India and Indonesia (Chaudhury, Hammer, Kremer, et al., 2004), nurses, clinical officers and medical doctors are reported to be demotivated, are corrupt, absent themselves from work by hours shaving off, are involved in illegal selling of government drugs to private health facilities and markets and involve themselves in contraband medicines. Further, even health workers' promotions on the basis of political influence endanger health practices and undertakings (La Forgia, Levine, Dias & Rathe, 2004). This may likely accrue to the impact of low commitment of the health and ICT personnel since the time of their training in colleges.

In Tanzania, studies on the effects of birth order on self-esteem development for university students are actually few (Nhandi, 2011, 2014). Again, understanding the influence of the students' birth order interactions and their effects on self-esteem development cannot be left unaddressed. This is particularly of objective interest and importance when addressing undertaking of these critical and important computer and health science careers in Tanzania whose workers are demotivated and their self-esteem lowered due to corruption and other unethical professional conducts (Mpembeni,

et al., 2015; Sikika, 2012; Stringhini, Thomas, Bidwell, Mtui & Mwisongo, 2009). For socially interactive and self motivated workers with high self-esteem, effective e-health service delivery needs students, and so workers, who are committed, socially interactive and agreeable and have in-call motive. Thus, the present study seeks to examine this.

4.1 Research question

Is there association between the average self-esteem scores of students in various birth order categories of undergraduate students enrolled in CHS and CIVE at UDOM and their selected career degree programmes?

5 Methods and procedures

This part explains the data collection instruments used in the present study. It gives the criteria for the selected study location and the population sampling of the participants involved. It further gives the analysis plan used in the study.

5.1 **Selection of the study location**

These two Colleges of CHS and CIVE of the new and fast growing UDOM prepare career professionals which attract many college students. Health sciences and ICT are prestigious careers which are directly determined in terms of service and clients. Second year students were selected for this study because they were familiar with the university life, challenges and had the exposure to the university environment and studies. Also they had done many university examinations compared to the first year students who had limited knowledge about University life. The second year students' experience and familiarisation with the university life helped them in easily evaluating themselves in relation to their careers' aspirations, anticipated success and comfort. Since these students were the first to be enrolled, there were no third year students.

5.2 **Research design and population sampling**

The study used a between family descriptive design to easily link students' birth orders from different families at the university and to be able to associate such birth orders and self-esteem with the students' university degree programmes' placement. This implies that while it is difficult to find many siblings from the same family in university contexts, it is possible to get students of similar qualifications who come from different families. All 227 second year undergraduate students in CHS and CIVE were purposely selected to participate in the study. These were the first second year cohort in the two Colleges and were few in number such that it was purposively deemed fit to include them all in the study. 183 (80.6%) out of all 227 expected students responded to and returned the questionnaires. While in CHS 73 (83%) out of 88 students and 49 (98%) out of 50 students pursuing Doctor of Medicine (MD) and Bachelor of Science in Nursing (BSc. Nursing), respectively, participated by responding to the questionnaires, 61 (68.5%) out of 89 students who were pursuing Bachelor of Science in Computer Science (BSc. Computer Science) in CIVE responded to the same. Data were collected by using questionnaires administered personally by the researcher to all 227 students who were freely requested to respond the questionnaire with assured confidentiality. The data obtained were descriptively processed using Statistical Package for Social Sciences (SPSS) version 16.

5.3 Instruments for data collection

This study used two questionnaires. The birth order questionnaire was adapted following Adler's birth order personality attributes of individuals. The second questionnaire adopted by the study is the closed self-esteem scale measure which is a standardized questionnaire developed by Rosenberg.

5.3.1 Birth order questionnaire

This instrument was used to collect birth order and personality characteristics/ information of the selected students. The questionnaire was personally developed by the researcher basing on the birth order literature and individuals' psychological and career personalities. The questions included those about birth order, age, sex, siblings, adopted children, educational background, participants' dreamt career interests before joining for university studies and the pursued careers. Other questions explored about family information background included family status whether monogamous or polygamous, the number of children born in families, birth age interval between one child to another and influence on participants' career interests' decisions and future expectations. The questionnaire had responses ranging from A to D for participants to circle the responses of their choice according to individual's information. Moreover, there were only two questions which required open ended responses.

5.3.2 Rosenberg self-esteem questionnaire

The questionnaire in this instrument required participants to respond to questions that sought descriptions of their self-satisfaction and self-esteem. There were ten items with four Likert scale responses which asked participants to score by ticking for agree (A), strongly agree (SA), disagree (D) and strongly disagree (SD). For the first five question items, their Likert scores ranged from 1, 2, 3 to 4 for A, SA, D and SD, respectively while the last five question items had their Likert scores reversed by 1, 2, 3 to 4 for SD, D, SA and A, respectively. The mean scores were computed using cumulative frequencies. The self-esteem values ranged from 0-15 (low), 16-25 (medium) to 26- 30 (high). All these computational procedures are given as instruction in the Rosenberg's (1965) Standardized self-esteem questionnaire.

5.3.3 Data analysis

The collected data were analysed by means of SPSS- 16 using descriptive statistics in percentages and frequencies. Further, the data results were discussed in content using associative themes.

6 Results

6.1 Do average self-esteem scores of undergraduate students reflect relevant e-health service personalities?

Table 1: Respondents' self-esteem scores across degree programmes in CHS and CIVE

Self-esteem scores	Frequency of scores	%	Degree programme/Cumulative scores						Self-esteem status
			MD	Cumulative scores	BSc. Nursing	Cumulative scores	BSc. Computer Science	Cumulative scores	
0	1	0.55	1	0	0	0	0	0	L
4	1	0.55	0	0	0	0	1	4	L
7	1	0.55	0	0	0	0	1	7	L
9	2	1.09	2	18	0	0	0	0	L
12	1	0.55	0	0	0	0	1	12	L
13	1	0.55	0	0	0	0	1	13	L
14	4	2.19	2	28	1	14	1	14	L
15	3	1.64	1	15	2	30	0	0	L
16	3	1.64	0	0	1	16	2	32	N
17	6	3.28	2	34	3	51	1	17	N
18	10	5.46	2	36	1	18	7	126	N
19	12	6.56	5	95	2	38	5	95	N
20	16	8.74	6	120	4	80	6	120	N
21	15	8.2	5	105	3	63	7	147	N
22	16	8.74	6	132	2	44	8	176	N
23	21	11.48	16	368	3	69	2	46	N
24	21	11.48	8	192	8	192	5	120	N
25	15	8.2	5	125	2	50	8	200	H
26	16	8.74	4	104	11	286	1	26	H
27	15	8.2	7	189	5	135	3	81	H
29	1	0.55	0	0	1	29	0	0	H
30	2	1.09	1	30	0	0	1	30	H
Total (391)	183	100	73	1591	49	1115	61	1266	
Average self-esteem score (M)			21.79		22.76		20.75		

Key: L= Low self-esteem; N= Normal self-esteem; H= High self-esteem; M= Mean

Table 1 shows that students who were pursuing BSc. Nursing had the highest average self-esteem score (M=22.76). Data were computed to obtain average self-esteem scores by using cumulative frequencies and frequency scores as instructed in the standardized questionnaire (Rosenberg, 1979). But on the whole, each group of these students had what the literature refers to as high, normal and low self-esteem scores (Rosenberg, 1965, 1979).

Table 2: Respondents' self-esteem scores by birth order

Self-esteem Scores	Birth Order						Frequency of Scores	Self-esteem status
	First Borns	Cumulative Frequency	Middle borns	Cumulative Frequency	Last Borns	Cumulative Frequency		
4	1	4	0	0	0	0	1	L
7	0	0	1	7	0	0	1	L
9	0	0	0	0	2	18	2	L
12	1	12	0	0	0	0	1	L
13	0	0	1	13	0	0	1	L
14	1	14	2	28	1	14	4	L
15	0	0	3	45	0	0	3	N
16	2	32	1	16	0	0	3	N
17	0	0	4	68	2	34	6	N
18	6	108	3	54	1	18	10	N
19	1	19	7	133	4	76	12	N
20	3	60	13	260	0	0	16	N
21	4	84	7	147	4	84	15	N
22	5	110	6	132	5	110	16	N
23	4	92	15	345	2	46	21	N
24	6	144	12	288	3	72	21	N
25	5	125	9	225	1	25	15	N
26	5	130	10	260	1	26	16	H
27	5	135	8	216	2	54	15	H
29	1	29	0	0	0	0	1	H
30	0	0	2	60	0	0	2	H
Total (391)	50	1098	105	2297	28	577	183	
A. S.S	21.96		21.88		20.61			

Key: A.S.S = Average self-esteem score; L= Low self-esteem; N= Normal self-esteem; H= High Self-esteem

Table 2 indicates that firstborns had the leading average self-esteem score (M=21.96). Additionally, all the three birth order categories represented in the two Colleges had normal average self-esteem scores; firstborns (M=21.96), middleborns (M=21.88) and lastborns (M=20.61).

7 Discussion of the findings

Tables 1 and 2 present the information that relates to the question regarding association of the average self-esteem scores of undergraduate students in various birth order categories enrolled in CHS and CIVE and whether they reflect relevant and effective e-health service delivery personalities. Data in Table 1 depict that students who were pursuing Bachelor of Science in Nursing had the highest average self-esteem (M=22.76) of all the degree programmes studied in the two Colleges. The average self-esteem scores of other participants were (M= 21.79) for Doctor of Medicine students and (M=20.75) for students who were pursuing Bachelor of Science in Computer Science, respectively. Furthermore, according to participants' birth orders in Table 2, firstborn students were revealed to have the highest average self-esteem score (M=21.96) of all the middleborns (M=21.88) and lastborns (M=20.61). This means that nursing students are more altruistic to their careers than others. Interaction and birth order impact have contributed to the first borns' highest self-esteem development due to maximum parental attention, care and love which firstborns receive compared to low social interaction that middleborns and lastborns receive in their

families. Most of the firstborns tend, therefore, to be more confident and competent and this, in turn, encourages their self-esteem growth.

7.1 **Birth order, self-esteem and siblings' relationships for e-health professional conduct**

The present study reveals that middleborn students have been more represented than the firstborns (Table 2). Specifically, Adler's (1964) study has been supported by the present study's findings that firstborns have normally higher self-esteem than other siblings in families. The higher self-esteem aids them in getting good academic performance and enviable work professionalism. They have high confidence which emanates from parents' direction and the tutor effect to their younger siblings (Adler, 1964). This phenomenon denotes the nature of interactions students have in their families. Later born students end up observing and imitating what the firstborn students do. Such imitation limits the later born students from having high self-esteem. Parent-child relationship, parental support and care accelerate students' self-esteem development, and in all these, firstborns are the first beneficiaries (Collins, 2006).

In social and career studies, the middle born students are very social, interactive and like negotiations and are compassionate (Adler 1964). Further, the laterborn students do not follow the rules and ethics of a given place. In other times, they can even question the status quo and the established principles (Adler, 1964). This phenomenon may not be friendly to the professionals who are prepared to handle sensitive health and ICT careers, and particularly the present motive towards provision of efficient e-health services in Tanzania (Elias, et al., nd; Appari & Johnson, 2008; URT, 2013b; Sikika, 2012). However, their social and interactive nature may be very helpful when addressing e-health services which require much passion, socialization and commitment since even their self esteem is moderately pleasing. On the other hand, firstborn students are hard working, competitive and follow the given ethics and principles (Adler, 1964). These personalities make the relatively high representation of firstborn students to be good that provision of e-health services will sail well with people who are intrinsically self- motivated, committed and abide by the professional conducts of their careers (Adler, 1964).

In the findings of the present study, it is plausibly significant that, since all middle born and firstborn students are relatively highly represented with good self-esteem scores, their personalities match with the social personalities and ethical commitment in the health and ICT careers they were undertaking for computer, nursing and medicine studied programmes. This gives a good sign of having people who are competently and socially flexible, interactive and professionally committed for effective e-health services delivery in the nation.

7.2 **Siblings' interaction, family size and environmental impact on self esteem development**

In African contexts, it is common that families are extended, have many children and other members. These may include relatives of distant kinship. Such relationships develop high tolerance and value to each member in a family. Every member positively counts the presence of other member as beneficial, lovely and intellectually a learning place of the youths from their elders. The present study findings indicate that families of the respondents were relatively large. Birth order and family literature indicate that families influence children's social skills, growth and life careers (Zajonc & Markus, 1975; Zervas & Sherman, 1993; Cox & Paley, 1997; Collins, 2006; Cuiting & Kerpelman, 2007; Khanam & Rahman, 2007; White & Klein, 2008). The Confluence Model (Zajonc & Markus, 1975) supports that first borns gain much from teaching their younger siblings

in families. Such conduct adds leadership personalities to first borns who normally direct and command the younger siblings what to do (Zajonc & Markus, 1975). It should also be known that productivity and quality of work in any organization depend on the job satisfaction of the professionals and their relationship with others (Bahalkani, et al., 2011).

Small family sizes influence children's acquisition of high self-esteem (Adler, 1964; Collins, 2006; Wilson, 2002). Firstborn students are likely to come from smaller families in their early life and that they might have benefited much from their parents due to high social interaction and undivided parental care (Adler, 1964). This is not so with the laterborn students who are likely to be born in families with many siblings and thus, interaction, care and family resources become scarce, and the dominance of the firstborns over their younger siblings dictates (Collins, 2006; Wilson, 2002). In line with this, the current study, as Table 2 presents, indicates that firstborns had the highest self-esteem (M=21.96) of all other later born students. This is likely due to the fact that students from small families demonstrate higher self-esteem than other siblings from large families. The demonstration of low self-esteem by students from large families is likely to force them to join careers which do not match with their personalities (Bates, 2015), the end result of which culminates into low self-esteem, job dissatisfaction and poor performance. This implies that health and computer science careers in the two Colleges of UDOM are likely to be dominated by laterborn students who, despite their good and positive social and cultural interactive personalities, may have low self-esteem attributes due to large families' impact (Gottfredson, 2002; Wilson, 2002; Collins, 2006).

In occupational choices and attraction, the social relationship between children and other family members have an important role. Older siblings influence occupational choices and aspirations of other siblings especially the laterborns either intentionally or through circumstances (Morgan, 1983). The Confluence Model maintains that the coming of many members in a family deteriorates its intellectual ability and favours more the firstborns than the later born siblings (Zajonc, 2001). On the other hand, the addition of more members to the family which occurs through, for example, adoption or marriage, increases the intellectual ability of the family.

Children get much learning from the interaction created by these new coming members. The findings of the present study reveal the students from all studied programmes to have self-esteem scores genuine for their in-call motive towards the careers they were undertaking in the Colleges of UDOM. The impact of this may justify the reason as to why many middle born students are more represented (Arap- Martim, 2009) in the degree programmes studied in CHS and CIVE (Nhandi, 2011, 2014). This may further imply that, with the current breakthrough in science and technology and the high interaction of people, middle and later born students are likely to be more represented in colleges and universities than the firstborn siblings. Such high representation of the middle and laterborn students signals a positive possibility of the e-health careers to be dominated by socially interactive professionals (Adler, 1964). On the other hand, these laterborn students, unlike the firstborns, are likely to fail to abide by the ethics and principles governing health, ICT and e-health services in particular (Adler, 1964; Carl, et al., 2008; Appari & Johnson, 2008). In so doing, the students from CHS and CIVE will produce effective professionals who are committed to and socially agreeable with their e-health career demands.

7.3 **Linking health and ICT for interactive e-health service provision**

Provision of e-health services is required to extend to remote areas and to places whose health services are very limited and challenging. It requires that expertise is shared among professionals to the places with acute demand. It needs professionals who are socially interactive, tolerant, full of respect and who love their patients. As Tanzania is undertaking initiatives towards successful implementation of e-health service delivery in the nation by 2018 (Elias, et al., n.d), the health sector still puts patients at risk (Busagala & Kawono, 2013; Kajirunga & Kalegele, 2015). There are threats to patients' information privacy by health personnel abusing their privileges by exploiting and disclosing the patient's information flow beyond its use, presence of corruption and poor language use (Appari & Johnson, 2008; URT, 2013b; Sikika, 2012; Mwaita & Owor, 2013).

It is therefore important that effective health and e-health professionals have good psychological and sociological attributes that are important to be integrated in information systems (Appari & Johnson, 2008) to professionally help facilitate delivery of e-health services for the nation. The present study gives significance of birth order and social interactions for effective self-esteem development among health and ICT professionals for effective, ethical and reliable e-health service provision in health facilities. The family and other social interactions and moderately high self-esteem shown by these student-professionals is a good indication that there is a need to consider and value the students' social backgrounds for sustained service delivery in the careers of their calls.

The implementation of e-health service delivery hardly considers human factors and ICT (Carl, et al., 2008). Human behaviour and performance for effective e-health delivery must be included (Elias, et al, n.d). In this case, therefore, high self-esteem among e-health workers resulting from interactive social and family environments, compassion, humour and commitment to professional ethics and conduct are important in that they help develop professionals who are psychologically and emotionally sound and strong (Cox & Paley, 1997; Appari & Johnson, 2008; White & Klein, 2008; Bahalkani, et al., 2011; Katongole, et al, 2015; Mpembeni, et al., 2015). Health and ICT careers experts must be socially interactive and competitive for life achievement with high self-esteems. This will enable them master the hard and challenging working conditions. The moderate high self-esteem scores by birth order and degree programmes studied by the students from the two colleges of UDOM, as presented in Table 1 and Table 2 above, indicate a self-motivated service provision. Therefore, family and social interactions are valuable and significant for self-esteem development and effective health and ICT career pursuit among university and college students towards effective e-health service provision in Tanzania.

8 Conclusion

Based on the above findings and discussion, this study concludes that:

8.1 There is a need to understand that the family environment is an important context to help facilitate students' career specializations upon entering to colleges and universities basing on their birth orders.

8.2 Self-esteem development among students is important when linked with their social upbringing since their childhood. In this context therefore, parents, schools and general social environments should not be ignored when developing people with high self-esteem to professionally and ethically fit into professional provision of e-health services. This implies that, personality

psychology, health and ICT careers need people who are serious, sensitive and socially altruistic to intrinsically provide e-health services in different places and contexts they are in.

9 Recommendations

The present study recommends that:

9.1 Birth order positions need to be considered in admission of students in order to produce graduates whose professional personalities will appeal well and positively maximize the delivery of their services in workplaces.

9.2 A comparative study should be conducted among health and ICT career university students, secondary school students and primary school pupils in order to more succinctly reveal the associations of the birth order personalities, interactions and self-esteem in relation to these students/ pupils' career aspirations.

9.3 Another study should be conducted to assess the professional efficiency of employed health and ICT personnel basing on birth orders' self-esteem and work performance in their workplaces.

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