

Psychological Adjustment among Persons with Spinal Cord Injury in the Tamale Metropolis, Ghana

Abstract

Introduction: Spinal cord injury (SCI) is a devastating condition that creates unique challenges to affected persons and family because of its inherent physical and psychosocial consequences. In spite of these consequences, little efforts have been made by African researchers to explore the psychological adjustment of persons with SCI in Africa, and the majority of studies in this regard were carried out in well-endowed countries such as the United States of America and Iran. The purpose of this study was to the psychological adjustment of persons with SCI in the Tamale Metropolis, Ghana.

Methods: The study employed a descriptive phenomenological design. Purposive sampling technique was used to recruit thirteen participants through the Neurosurgical Unit of the Tamale Teaching Hospital. Data was gathered through semi-structured interviews, and analysed using content analysis.

Results: The four main psychological adjustment strategies that were identified from our data were ‘Religious Beliefs’, ‘Hope’, ‘Information Seeking’ and ‘Acceptance’.

Conclusion: Although persons with SCI in employ a myriad of psychological adjustment strategies such as hope, information seeking and acceptance, religion beliefs as an adjustment strategy plays a pivotal role in assisting persons with SCI adjust to the ramifications of the injury. Relevant stakeholders in the health care delivery system should promote the services of

22 the hospital chaplain in the care of persons with SCI in order to meet the spiritual needs of these
23 persons.

24 **Keywords:** Spinal cord injuries; Religion; adjustment; Hope; Information seeking behaviour;
25 Functioning

26 **Introduction**

27 Spinal cord injury (SCI) is a devastating condition that affects the biopsychosocial health of the
28 affected individuals (1, 2, 3, 4, 5). Globally, about 40 to 80 cases per million population are
29 reported each year for both traumatic and non-traumatic SCI (6). The world Health Organization
30 (6) asserts that improvements in clinical care and rehabilitation services have led to an increase
31 in the life expectancy of persons with SCI. This implies that persons with SCI will live with the
32 disability for longer periods of time, giving rise to new experiences that can negatively affect
33 their quality of life (6). Again, the occurrence of a SCI creates unique challenges to affected
34 persons because of its inherent physical and psychosocial consequences (7, 8). Studies have
35 reported that persons with SCI are often faced with physical symptoms ranging from chronic
36 pain and immobility secondary to paralysis, to pressure ulcers, and urinary incontinence among
37 others (7, 9, 10, 11). These physical symptoms often give rise to psychological dysfunction such
38 as low self-esteem (12), depression and anxiety (3, 13). In addition to the physical and
39 psychological dysfunction, persons with SCI are also faced with a significant decline in
40 participation in social activities, marital and sexual relationships problems as well as financial
41 difficulties (6, 5, 14, 15). All these challenges adversely affect the functioning and quality of life
42 of affected persons.

It has been recognised that, the use of appropriate psychological adjustment strategies is the key factor in determining successful adjustment to SCI (16, 17), and for effective adjustment to SCI to take place, persons living with the injury need to reassess and redefine their aspirations, objectives and meanings of life (18, 19). Psychological adjustment has been defined as any effort, either intentionally or unintentionally that is intended to prevent, eliminate, or tolerate the effects of stressors (20). To this end, persons living with SCI need to cope with the changes in their physical and psychosocial health in order to maintain optimal functioning and to lead a meaningful life. There has been extensive work on the psychological adjustment and coping strategies among persons with SCI (21, 17, 22, 19, 23). Most of these studies however, were conducted in well-endowed countries such as America, Iran, the United Kingdom and Sweden among others. Little efforts have been made by African researchers in exploring the psychological adjustment mechanisms of persons living with SCI and there is paucity of studies in that regard in the African continent. Again, like many other African countries, little is known about the psychological adjustment strategies of persons with SCI in Ghana. The purpose of this study therefore was to explore the psychological adjustment strategies of persons with SCI in the Tamale Metropolis, Ghana.

Methods and Materials

Study Design

The present study was a part of a descriptive phenomenological Master of Philosophy (Nursing) dissertation for the first author to explore the experiences of persons living with SCI in Ghana. The main purpose of a phenomenological study is to describe the lived experiences of several individuals of a concept or phenomenon (24). Descriptive phenomenology involves the researchers setting aside all preconceived biases to see phenomena through unclouded lenses,

and allowing the true meaning of phenomena to naturally emerge from the perspectives of the participants (25). To explore the psychological adjustment strategies of persons with SCI, descriptive phenomenology was therefore the most appropriate design for the study.

Study Setting

The study was conducted in the Tamale Metropolis which is the third largest metropolis in Ghana. The Metropolis is one of the 26 districts in the Northern Region. It is located in the central part of the Region and shares boundaries with the Sagnarigu District to the west and north, Mion District to the east, East Gonja to the south and Central Gonja to the south-west.

It has a population of 233,252 representing 9.4 percent of the region's population according to the 2010 Population and Housing Census. Males constitute 49.7 percent and females represent 50.3 percent. In addition, the population of the metropolis is youthful with nearly 36.4% of the population is below the age of 15 years. Of the population 11 years and above, 60.1 percent are literates and 39.9 percent are nonliterates (Ghana Statistical Service, 2012).

Sample and Sampling Procedure

Purposive sampling technique was the sampling method used to select the sample for the study. Thirteen participants who had been diagnosed with a SCI at the Tamale Teaching Hospital-Ghana participated in the study. The sampling continued until data saturation was achieved. Saturation in qualitative research is achieved when new emerging themes are not forthcoming (26). Participants were given fliers that contained the purpose of the study with the help of nurses in the neurological unit of the hospital. Participants who met the inclusion criteria of; having a SCI, being eighteen years of age or over and ability to communicate in English or Dagbani (a

87 local dialect) were contacted by the first author and the purpose of the study was explained to
88 them. They were subsequently recruited into the study as obtaining an informed consent.

89 **Data Collection Methods and Procedure**

90 Data for the study were gathered mainly through face-to-face in-depth interviews. The interviews
91 were conducted using an interview guide which was developed based on the objectives of the
92 study. Some of the questions that were asked during the interviews were: “could you please share
93 with me your experiences with SCI”; “could you please explain the challenges you have been
94 facing since after you injury; “could you please share with me how you have been able to adapt
95 to the challenges that come with the injury?” “What has kept you going in spite of all that you
96 have been through?” The participants were contacted a few days before the actual data collection
97 day to allow them enough time to consider their participation. The interviews were conducted at
98 private locations base on participants’ convenience and preferences. The interviews were
99 recorded in an audio-tape recorder with the permission of the participants. The interviews lasted
100 for approximately 30 to 66 minutes depending on the tolerance of participants and their
101 willingness to share their experiences of the phenomena. The researchers also took field notes of
102 all non-verbal communications during the data collection process to ensure that every aspect of
103 the data was captured, and also to help in the analysis.

104 **Data Analysis**

105 The interviews were analysed concurrently with data collection using content analysis (27). The
106 purpose of content analysis is to describe the characteristics of the document’s content by
107 examining who says what, to whom, and with what effect (27, 28). At the end of each interview,
108 the first author manually transcribed verbatim, the audio-taped recording of the interview. The

accuracy of the manual transcripts was checked by a colleague researcher who read the transcript and at the same time listened to the audio-taped recordings. For interviews that were conducted in the local dialect (Dagbani), the transcripts were translated into English by another person who speaks and writes Dagbani to ensure the accuracy of the translation. After all audio-recordings had been manually transcribed, the transcripts were printed and the data was then analysed using content analysis. Each printed transcript was read and reread many times to gain a sense of the whole and to become familiar with the content of the transcript. During the analysis, the researchers searched the transcript for similar ideas, thoughts and words and these made up the codes. Identified codes were written on the hard copies of the transcripts. Each transcript was handled in this same manner, and new codes that emerged during the process were added until all the transcripts were coded. Following the coding, all information belonging to a code were copied and pasted in separately labelled Microsoft word files in a computer. Subsequently, the coding framework and the relationships between the codes were analysed and similar codes grouped into sub-themes and main themes. The coding framework changed as the analysis process progressed, with similar themes and sub-themes grouped together by the research team.

Trustworthiness

The researchers employed a number of measures to ensure the validity of the findings of the study. To begin with, the researchers achieved Transferability (29) in the study by giving a vivid description of the research setting and by employing a sample size large enough to yield data saturation. To achieve credibility of the data, the researchers purposefully recruited participants that met the inclusion criteria and who could provide in-depth information on their experiences with SCI. Again, the first author spent sufficient time in the field to gain a fuller and deeper understanding of participants' experiences. Credibility was further enhanced in the study through

member-checking (30); Transcripts of the interview were taken back to the participants and explained to them in the local dialect for comments and verifications before conclusions were drawn from the data. In achieving dependability in the study, the researchers maintained an audit trail by giving a transparent and in-depth description of the research design, background of participants and the methods used in collecting and analysing the data. The first author also employed the services of his supervisors who were not involved in the data collection to examine and make comments on the processes and findings of the study. The purpose was to evaluate the accuracy and assess whether or not the findings, interpretations and conclusions were actually supported by the data. To address any conflict of interest, the lead researcher reflected on his own biases and prejudices and bracketed and controlled them before data was collected.

Ethical Considerations

Approval for the study was obtained from the Institutional Review Board (IRB) of the Noguchi Memorial Institute for Medical Research, University of Ghana, with IRB number 00001276 and the research committee of the Tamale Teaching Hospital (TTH/R&D/SR/16/190). In addition, the purpose, objectives and any potential benefits and risks for participating in the study were explained to participants in the local dialect (Dagbani) or English a few days prior to data collection. This allowed participants enough time to consider their participation. Informed consent was obtained from each participant that met the inclusion criteria and agreed to take part in the study. Participants were also informed that they could decline to participate or withdraw from the study even after they had signed the consent form without any consequences. The permission to record the interviews was sought from each participant who agreed to participate in the study. Data from the study were kept under lock and in the first author's office and only the researchers had access to the data.

Results

Demographic Characteristics of Participants

The age range of participants was from 24 to 72 years with a mean of 50.5 years. Nine (69.2%) of the participants were males and four (30.8%) were females. Two of the participants were Christians (15.4%) and the rest were Muslims (84.6%); ten (77%) were married and three (23%) were single; eight (61.5%) had formal education and five (38.5%) had no formal education. Also, eight of the participants sustained their injury from road traffic accidents, three from tumour and two from unestablished aetiologies. Participants have had their injuries for about 6 months to 5 years (Table 1).

Table 1

Demographic Characteristic	Average	N (%)
Age	50.5	
< 40 years old		4 (30.8%)
≥ 40 years old		9 (69.2%)
Sex		
Male		9 (69.2)
Female		4 (30.8%)
Religion		
Muslim		11 (84.6%)
Christian		2 (15.4%)
Marital status		
Married		10 (77%)
Single		3 (23%)
Level of Education		
Educated		8 (61.5%)
No Formal Education		5 (38.5%)
Duration of Injury		
< 2 years		3 (23%)
≥ 2 years		10 (77%)

166 The four main psychological adjustment strategies that were identified from our data were
167 ‘Religious Beliefs’, ‘Hope’, ‘Information Seeking’ and ‘Acceptance’.

168 **Religious Beliefs**

169 Religious beliefs were identified as an important adjustment strategy used by the majority of
170 participants of our study in adjusting to the consequences of their injuries. The majority of the
171 participants attributed the injury they sustained to a test on their faith from God, while a few
172 others believed that, the injury sustained was a punishment from God, for sins they believed to
173 have committed in the past. Some of the participants also drew inspirations from verses in the
174 Quran by making inferences to Quranic quotations. The participants added that since it is Allah
175 that gave them the injury, they had to bear the consequences. Some of the participants expressed
176 their views and experiences are as follows:

177 *“There is this Quranic quotation that says “Allah does not burden His servant more*
178 *than what he/she can bear. So because of this Quranic verse, anything that comes my*
179 *way, I say it’s from Allah. Allah knew very well that I could bear the consequences of the*
180 *injury and that is why He has given it to me. So I leave everything to Him” (Adams)*

181 Another participant believed that, her condition is God’s way of putting her faith to test. She
182 narrated:

183 *“There is always a saying that, the one that God loves is the one He tries to see his faith.*
184 *So when it came to that point, even though the cost and the suffering were too much, I*
185 *said to myself that no, this could be God’s way of putting my faith to test. So I prayed to*
186 *that same God to see me through and that is what has kept me going”. (Mariam)*

187 Although the majority of participants attributed the condition to divine providence, one of the
188 participants saw his injury as punishment from God for the sins he believed to have committed in
189 the past. He commented:

190 *"I don't blame anyone for my accident. It was just my turn, because as a true Muslim,*
 191 *whatever happens to me, I leave it to God. I only believed that, maybe I had sinned and*
 192 *God wanted to punish me for the sins I have committed by giving me the accident."*
 193 (Alhassan)

194 **Hope**

195 Hope was yet another psychological adjustment strategy that was employed by participants of
 196 our study in adjusting to the consequences of their injuries. The majority of the participants were
 197 hopeful of recovery, regardless of the severity of their physical impairment after the injury. Some
 198 of the participants became hopeful from the fact that they were still alive and had noticed an
 199 improvement in their condition. A few other participants also verbalized that they became
 200 hopeful after seeing an improvement in other patients with the same conditions in the ward. The
 201 researchers observed that, participants that employed religious beliefs as a coping mechanism
 202 also expressed higher hopes for recovery than other participants.

203 Wumbei was thankful for his life and hoped for recovery one day. He explained:

204 *"All that happened is part of human life. But as long as there is life, I would not lose*
 205 *hope. The white man tells us never lose hope until the bones are rotten. So it is not easy*
 206 *but that is what keeps me going; that I know one day I would be fine."*

207 Abena had also seen an improvement in her condition and hoped to gain full recovery with time.
 208 She explained:

209 *"I get inspired by the fact that I can now do things I couldn't do when I first came here.*
 210 *At first I couldn't feel any sensation on my legs but now I can feel it when you touch my*
 211 *legs. So with that I know that little by little I would be fine."*

212 Zack also got inspired after noticing an improvement in the condition of others with a similar
 213 situation in the ward. He narrated:

“There were others in the ward my condition was far better than and after sometime they begun to walk. So, there I realized that everybody and the time and I know my time would come. It may take time but I know I would recover from this someday.”

Information Seeking

Another adjustment strategy that was employed by participants of our study was ‘information Seeking’. Majority of the participants were not given adequate education on the nature of their injury while on admission at the hospital. This compelled some of the participants to seek for information about SCI from friends who were health personnel, and from the internet. The participants verbalized that, the information they received from friends who were health personnel and/or from the internet assisted them to understand the ‘dos and don’ts’ of their injury and that helped them in their adjustment to the injury. This is supported in the following quotations:

“Well, to be frank, I wasn’t educated thoroughly on what the injury was all about. But I realized that, there was something they were hiding from me. And out of that fear, and because no one was willing to talk to me, I started looking for information about the condition on the internet. And that really helped a lot because I had lots of information about the injury; what I needed to do and what the injury is all about. (Abena)

Another participant had this to say:

“I got to know much about the condition through a friend of mine who is a nurse. He came on a visit and explained everything to me and made me to understand that, healing may take some time and that I needed to be patient. That was where I got relieved a bit because I was very much afraid before”. (Gariba)

The participants further reported that, reading about the injury and its consequences on the internet assisted them in accepting their situation. This is what one of the participants had to say in sharing his experience:

239 *"I have been reading about how people with the condition can make a change in society*
 240 *and it tells me that, you must not necessarily be an abled person to that. So, you can*
 241 *make a change even on wheelchair, provided you have the courage and the support. For*
 242 *me, that has been my motivation". (Adam)*

243 **Acceptance**

244 Some of the participants stated that, they had to accept the injury and learn to live with the
 245 consequences because they had no control over the situation. A few other participants accepted
 246 the injury after learning more about the condition from friends and from the internet.

247 Thirty one year old Adams had to come to terms with his situation after all attempts to regain
 248 movement and control of his legs proved futile. He narrated:

249 *"Initially, I was always trying to raise my legs and trying to see if I could sit up or walk.*
 250 *But as the time went by, I got to realized that was not possible and that, I just had to*
 251 *learn to live with it. What can I do?"*

252 He continued to say:

253 *".....and since I came to terms there is little I can do about the situation, I have been*
 254 *asking myself if there is something I could still give to society. And I realized that there is*
 255 *still something in me that I am denying the society of. So I want to go out there and see*
 256 *whether I can make a change, because you don't know what you can do even in*
 257 *wheelchair until you try". (Adam)*

258 Gariba had the following to share:

259 *"Frankly speaking, it was hard at the beginning. You know, you wake up healthy and all*
 260 *of sudden this? But what I think really has been helpful is the words of encouragement*
 261 *from my friends and what I have personally come across in my reading about the*
 262 *condition. I realized all was not lost after reading about what one can do even with a*
 263 *SCI"*

264 **Discussion**

265 To be able to adjust to the debilitating nature of SCI and to maintain optimal functioning after
 266 the injury, the participants of our study employed a number of strategies. These strategies,
 267 according to the data generated from the participants were “Religious Beliefs”, “Hope”,
 268 “Information Seeking” and “Acceptance” respectively. Religious beliefs were identified as the
 269 most important coping strategy that was employed by the majority of participants in the present
 270 study, for dealing with the consequences of the injury. Some of the participants attributed the
 271 injury they sustained to a test on their faith by God while others saw the injury as ‘punishment’
 272 from God for sins they believed to have committed in the past. A few other participants drew
 273 inspiration from Quranic quotations where Allah states that “God does not burden His servant
 274 more than what he/she can bear”. Similarly, other studies have cited religious beliefs as an
 275 important coping strategy for adjusting to the stressful experiences of SCI (19, 32). Chlan et al.
 276 (31) assessed spirituality and life satisfaction among adults with paediatric-onset SCI in the
 277 United States. Over half of the participants in the study endorsed religion as very important to
 278 their lives and also employed spiritual coping as a strategy for dealing with the condition (31). In
 279 another study, Babamohamadi et al. (19) explored the coping strategies of eighteen Iranian
 280 Muslims with SCI. Participants in that study identified religious beliefs as one of the most
 281 important coping strategies that helped them in refining their thoughts, focusing on the problem
 282 and taking decisions (19). It is clear from the above discourse that, the use of religious beliefs
 283 and spirituality as psychological adjustment strategies are common among persons with SCI and
 284 consistent across cultural boundaries. It was however, not surprising to have observed that, most
 285 of the participants in the present study cited religious beliefs as an adjustment strategy. This is
 286 because Ghanaians are notably religious and relate every aspect of their lives to religion. The
 287 population of Ghana are predominantly Christians (71.2%), Muslims (17.6%) and traditionalists

(5.3%) (32). Belief in the supernatural powers of God as a supreme being, in control of human life is phenomenal in the country. Again, it is known that the Ghanaian culture is heavily underpinned by religion, be it Christianity, Islamic or traditional religion. Thus political, social and even educational activities in the country are all infiltrated with religion.

Hope was yet another psychological adjustment strategy that was employed by participants of the present study. The majority of participants in the present study were hopeful for recovery from the injury regardless of the severity of their illness or magnitude of their physical impairment. Some of the participants became hopeful after noticing improvement in their condition while others got hopeful after witnessing an improvement in the conditions of other patients with similar conditions on the ward. Similar to our finding, previous studies have identified hope as a critical psychological variable for the well-being and quality of life of persons with SCI (34), (35), (36). Lohne and Severinson (36) assessed the experience of hope among persons with SCI after a year of injury. Similar to the findings of our study, participants in that study identified hope as the psychological factor necessary for recovery (36). Again, previous narrative reviews have reported that persons with paralytic SCI continue to have hope of walking again, even when there is no evidence of the possibility of walking after their SCI (35), (38). Future longitudinal studies would help shed light on the impact of hope as a coping strategy, on the recovery of persons with SCI.

In their quest to understand the multifaceted nature of SCI, with the aim of adjusting positively to its consequences, the majority of the participants of our study sought for information about SCI from sources rather than from the health staff at Tamale Teaching Hospital. This is because, majority of the participants were not given adequate health education while on admission at the hospital. Some of the participants sought for information about SCI from the internet, while

others received health education from friends who are health professionals. Previous studies have also identified the internet as a relatively accessible source of information, that is patronized by majority of persons with SCI, but cited concerns about the quality of information found there (39, 40). According to our participants, the information they received from the internet and friends assisted in their adjustment to the ramifications of their injury as it helped them to understand the “dos and don’ts” of their injury and how to live with it. To the best of our knowledge, this is the first study on coping in SCI that identified information-seeking as a coping strategy for persons with SCI, as the majority of previous literature cited other coping strategies such as emotional support, humour, positive reframing, religion, and other concepts, as the coping mechanisms for persons with SCI (41, 19, 22, 23). Differences in demographic characteristics of participants and sociocultural differences between the present study and other past studies may account for the differences between our findings and that of others. Future comparative studies involving large transcultural samples would help shed more light in the coping strategies of persons with SCI across cultures.

Further to the above, participants of our study also employed acceptance as a psychological mechanism in dealing with the consequences of their condition. The participants stated that, they had to accept the consequences of the injury since there was nothing they could do about the situation. A few of the participants however, accepted the injury after seeking information about the condition from the internet and from friends and who are health workers. It was therefore not surprising to the researchers to have observed that, the majority of participants in the study that employed information-seeking as a coping strategy, also accepted their condition. In congruence with our findings, Soundy et al. (37) in a narrative review, also identified acceptance as a common coping strategy among persons with SCI. The researchers reported that, the importance

of valuing what is left in life and being able to see a different future with modified hopes were identified by participants of most of studies reviewed as important and represented an ability to transcend suffering (37).

Conclusion

Although persons with SCI in Ghana employ a number of psychological adjustment strategies in dealing with the consequences of the condition, it is clear from the above that, religion plays a pivotal role in assisting persons with SCI adjust to the ramifications of the injury. The Ministry of Health and other relevant stake holders in the health care delivery system should promote the services of the hospital chaplain in the care of persons with SCI in order to meet the spiritual needs of these persons. There must also be proper health education for persons with SCI and their families to enable them understand the multifaceted nature of SCI and aid in their adaption to the consequences of the injury. The only limitation of the study identified by the researchers was the representativeness of the sample. This is because, to ensure that rich and detailed data was obtained on the coping strategies of persons with SCI, the researchers employed a purposive sampling technique to recruit only participants who had a wealth of information to share on their experiences. As a result, the findings' replicability is limited to groups that share the same characteristics as the sample of this study. Future longitudinal studies involving large samples would help shed more light on the coping strategies of persons with SCI over time.

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356 **Conflicts of Interest**

357 The authors have no conflict of interest

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