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# TRAUMATIC STRESS IN A MISSIONARY POPULATION: DIMENSIONS AND IMPACT

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Data Mining procedures were used to analyze responses of 173 missionaries surveyed about the nature and impact of traumatic stress (TS) they may have experienced while on the field. TS was almost universal, with the most frequent types involving system failure or personal crisis; there was also a high incidence of permanent negative change in those reporting TS, and over a third of these reported continuing symptoms almost a decade post-incident. Non-catastrophic stressors and stressors involving System Failure (particularly those with peer-System Failure) had higher TS impact. Severity, as seen in Total Impact and Total Number of Symptoms, was related to permanent negative change, as was age, with younger missionaries (possibly a generational rather than age or experience issue) being more vulnerable. Both destructive and salutogenic change were associated with TS, but no predictive variables were found for the latter.

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The world is an increasingly dangerous and violent place. From 1992 to 2001, non-conflict disasters per year increased by 193 percent (International Federation of Red Cross and Red Crescent Societies, 2002), and the total number of people reported killed and affected by disasters between 1967 and 1994 was estimated to have risen by 10 million additional people each year (International Federation of Red Cross and Red Crescent Societies, 1995). These massive figures do not include those whose lives have been lost or affected by intra- and inter-state conflicts, which have also increased. This is the milieu of our international mis-

sionaries, and its stressful nature is evident in the annual attrition rate for missionaries, estimated at 5.1% (Brierly, 1997).

The importance of stress in general, as a factor in missionary adaptation and well-being has been discussed extensively in the literature (Carter, 1999; Chester, 1983; Dymont, 1989; Gish, 1983; Miersma, 1993; Rosik and Kilbourne-Young, 1999; VanderSteen, 1987; Wilcox, 1995). Not surprisingly, there is also a considerable discussion in the literature dealing with variables that might associate with stress and its impact. Age has been shown to be one such factor. Donovan and Myers (1997) reported strong generational differences in missionary attrition. Furthermore, younger missionaries have been found to experience more stress than their older peers (Gish, 1983), to be less likely to extend their commitment (Wilcox, 1995), be more vulnerable to emotional trauma or burnout (Miersma, 1993), and to have higher frequency and intensity of emotional exhaustion (Dymont, 1989). Thus, it appears that age may serve as a buffer by weakening the positive association between stress and impairment.

Several studies have investigated the impact of marital status, with mixed results. Married missionaries have been found to be more likely to extend service (Wilcox, 1995). However, no differences have been found for marital status on emotional burnout (Dymont, 1989) or what is perceived to be stressful (Gish, 1983). Likewise, findings on gender (Dymont, 1989; Gish, 1983) and years of service (Chester, 1983; Gish, 1983; Dymont, 1989) have been mixed. Thus, the evidence to date is inconclusive as to whether marital status, gender, or years in service moderates the effect of stress on psychological and occupational functioning. Gender findings (Dymont, 1989; Gish,

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1983) and years of service (Chester, 1983; Dymont, 1989; Gish, 1983) were mixed, and occupational factors were frequently found to be high on stressor lists (Carter, 1999; Dymont, 1989; Gish, 1983; VanderSteen, 1987) as was language acquisition/competency (Carter, 1999; Gish, 1983; Rosik and Kilbourne-Young, 1999; VanderSteen, 1987).

Several authors have gone beyond stress and burnout in general and have considered traumatic stress specifically, proposing ways in which it is likely to impact missionaries. Detrimental impact has been implicated in the form of psychiatric diagnoses. Rosik and Kilbourne-Young (1999) linked what they called unique mission stressors to the development of dissociative disorders in adult missionary kids, and Carr (1994) discussed the importance of understanding the traumatic stress of missionaries and recognizing the symptoms of post-traumatic stress disorder among them.

In comparing missionary traumatic exposure to combat exposure, Miersma (1993) postulated several factors that contribute to an exacerbation of stress levels in missionaries, including 1) lack of opportunity for debriefing, discussion and decompression, 2) lack of debriefing support from home, 3) lack of home support when moving or changing assignments, 4) not having tangible results and positive affirmation for their efforts, 5) lack of appropriate "sealing over" of the missionaries experience through ritual, 6) the observation that younger missionaries are at higher risk, and 7) unexpected crises. Additionally, Jensma (1999) reviewed a number of specific effects of trauma on missionaries in cognitive, physiological, emotional and behavioral domains of functioning. She speculated that missionaries are at higher risk than many others for critical incidents and goes on to outline interaction strategies for traumatic exposure based on the Mitchell (Everly and Mitchell, 2000) Critical Incident Stress Model used conjointly with Shapiro (1995) Eye Movement Desensitization and Reprocessing. While these theoretical articles have increased our understanding and suggested specific ways in which traumatic stress in missionaries might be ameliorated, the empirical evidence is sparse.

To adequately select, prepare and safeguard this valuable population, it seems essential that we gain an understanding of traumatic stress (for the purpose of this investigation, we use the term traumatic stress [TS] to refer to any stressor [acute or insidious] that is sufficient to overwhelm normal coping capacity) and its impact on missionaries. This study attempts to fill in

some of the gaps by investigating (1) what constitutes TS in a missionary population, (2) its prevalence, (3) the impact of the TS on the missionaries, and (4) what factors, if any, associate with the stress experienced.

## METHOD

### *Participants and Procedures*

An inquiry was sent to mission agencies listed in the 1998-2000 Mission Handbook for U.S. and Canadian Ministries Overseas (Siewert & Valdez, 1997). Through follow-up contact seven agencies agreed to participate in distributing the CIS questionnaire in writing and/or electronically to its' members. Questionnaires were also distributed to the missions agencies attending the Harvest Mission Fest in Tulsa, Oklahoma. One participant was eliminated because of not being a missionary, one for being an electronic duplication and another for providing only demographic information, leaving 173 usable questionnaires.

The participants were predominantly married (71.3% married, 24% single, 3.5% divorced, 1.2% widowed), had children in the field (70.1%) and female (56.4% f, 43.6% m). They served an average of 11 years in the field (median, 9; mode, 4) distributed over six continents (15.3% N. America, 15.3% S. America, 21.2% Europe, 12.9% Africa, 23.5% Asia, 4.1% Australia, and 7.6% mixed) and worked 47.4 hours per week (median, 45; mode, 40). Their mean age was 49.4 (median, 47; mode, 44), with 38 subjects being under 40, 94 between 40 and 60, and 39 over 60 years old. The missionaries reported high levels of host culture language fluency (on a 7 point Likert scale;  $M = 4.3\%$ ; median, 4; mode, 5), and on a 7 point Likert scale, showed a high degree of accord with spouses (6.7), children (5.8) and families (5.2) over entering the mission field. The majority of missionaries were with parachurch organizations and their focus on the field is presented in Table 1.

### *Instrument*

The questionnaire consisted of five parts. The first included eight demographic questions and the second consisted of six questions dealing with potential associated factors. The third segment was made up of two questions, one confirming or denying the presence of an overwhelming stressor while on the field, and the second an open-ended description of the TS. A descriptive rather than forced-choice description of stressors was chosen to eliminate any possible bias as

**TABLE 1**  
*Missionary's Work Focus*

Focus	Count	%	Focus	Count	%
Church Planting	36	20.6%	Evangelism/Discipl.	12	6.9%
Multiple Focus	25	14.3%	Bible Trans./Literacy	11	6.3%
Teaching	20	11.4%	Ministry, unspecified	10	5.7%
Pastoring/Admin.	17	9.8%	Language Study	5	2.9%
Health/Psychol.	13	7.4%	Technical (Aviation, Print, Agriculture)	5	2.9%
Children/Youth	12	6.9%			

to what would or would not be considered traumatic by the respondents. The fourth section was comprised of five questions dealing with stressor impact, including symptoms, perceived severity, duration, time post exposure, and an open-ended description of any permanent changes experienced. For some of the analyses, we added together the symptoms and the severity, after they had been standardized, to form an Impact Score. We also looked at the symptoms by symptom clusters, and not simply by the number of symptoms. Those clusters were depression, arousal, re-experiencing, avoidance, and behavioral. The final section, consisting of four questions dealing with coping factors, is a part of a separate investigation.

The participants' descriptions of TS were divided into seven categories: 1) System Failure (SF), referring to failure of the participants' support system(s), including peer SF, general SF, supervisor SF, isolation SF and total SF; 2) Personal Crisis (PC), including safety PC, illness PC, and misc. PC; 3) Work Stress; 4) Catastrophe; 5) Ethics; 6) Death; and 7) Family Stress. The categories were not mutually exclusive, with many respondents describing events consisting of more than one TS category. Likewise, the descriptions of permanent change consisted of two categories: Negative Changes—Relationships, Emotions, Personal Change, Work Impairment, and Belief Change; and Positive Changes—Spiritual Growth, Personal Skills, Relationships, Increased Awareness, and Emotions.

Because of the paucity of data on missionaries and TS, we were exploring relationships (hypothesis seeking) rather than doing confirmatory analyses. We wanted to see what relationships might exist in the data and then tie those relationships to what was

known concerning those variables. Responses were analyzed using the STATISTICA-software package (StatSoft, Inc., 1998, StatSoft, Inc., 2003). Possible relationships were then further explored utilizing Data Mining procedures (StatSoft, Inc., 2004), mainly by group comparisons, using variables suggested by the literature and by importance plots of predictors. These relationships were formulated into possible hypotheses for future research.

**RESULTS**

*TS Incidence*

TSs were reported by 80.1% of the respondents, with the incident occurring an average of 9.4 years prior to the survey (median, 6 years; mode, 4 years). As can be seen in Table 2, failure in the missionary's support systems (SF) and personal crises (PC) were the most common forms of TS reported. Of the stressors experienced, 45.3% were relational v. 54.7% non-relational, 27.7% catastrophic v. 72.3% non-catastrophic, and 47.8% had an acute onset v. 52.9% having gradual or accumulative onset.

*TS Impact*

Two tailed *t*-test comparisons showed missionaries who reported experiencing a TS vs. those not reporting a TS were younger ( $M = 48.1$  years,  $SD = 12.28$  vs.  $M = 54.7$  years,  $SD = 18.47$  respectively,  $t(171) = 2.48$ ,  $p = .0013$ , Bonferroni correction:  $p = .0071$ ,  $df = 169$ ) and rated higher in agreement with spouses for entering the mission field ( $M = 6.31$ ,  $SD = 1.52$  vs.  $M = 6.79$ ,  $SD = 1.55$ ,  $t(125) = -2.26$ ,  $p = .0000$ ,  $df = 123$ ), while no significant differences were found

**TABLE 2**  
*Incidence of Traumatic Stressors*

Stressor	Count	% TS Ss	Stressor	Count	% TS Ss
SF, peer	30	24.8%	SF, isolation	12	9.9%
PC, safety	26	21.5%	Ethics	11	9.1%
PC, illness	23	19.0%	Death	10	8.3%
Work stress	23	19.0%	PC, misc.	10	8.3%
SF, general	20	16.5%	Family stress	8	6.6%
SF, supervisor	16	13.2%	SF, total	69	57.0%
Catastrophe	15	12.4%	PC, total	59	41.3%

PC = Personal Crisis SF = System Failure

**TABLE 3**  
*Symptom Frequencies*

Symptom	#	% TS Ss	Symptom	#	% TS Ss
Fatigue	77	63.1%	Relational Difficulty	33	27.0%
Depression	71	58.2%	Re-experiencing	24	19.7%
Withdrawal	48	39.3%	Physical Symptoms	20	16.4%
Irritability	46	37.7%	Nightmares	9	7.4%
Intrusive thoughts	44	36.1%	High Risk Behavior	5	4.1%
Sleep Disturbance	43	35.2%	Symptom Groups:		
Concentration	40	32.8%	Depression	112	64.0%
Job Performance	40	32.8%	Arousal	87	49.7%
Emotional numbing	36	29.5%	Avoidance	81	46.3%
Detachment	34	27.9%	Behavioral	61	34.9%
Loss of Pleasure	34	27.9%	Re-experiencing	54	30.9%

for agreement with children or families, host language fluency, hours worked per week, or years in the field. Chi square comparisons also revealed no significant differences between those reporting and not reporting TS for either marital status or gender.

### *Impact*

Participants reported an average of 4.97 symptoms (median, 5; mode, 5; minimum, 0; maximum, 14). Table 3 presents the frequency of symptoms experienced by the missionaries, both for individual symptoms and for the five symptom categories. Over a third of the respondents reported their symptoms as still continuing (24 hours or less, 3.4%; 24-72 hours, 2.6%;

a few weeks, 20.7%; months to a year, 37.9%; continuing, 35.3%). On a 7-point Likert scale, Participants reported a mean perceived stressor severity of 4.9 (median, 5; mode, 6). Additionally, many experienced permanent changes, both positive and negative, consequent to their TS. Of those reporting a stressor, 27.0% reported permanent negative change only, 60.7% permanent positive change only, and 11.5% both positive and negative permanent changes (See Table 4).

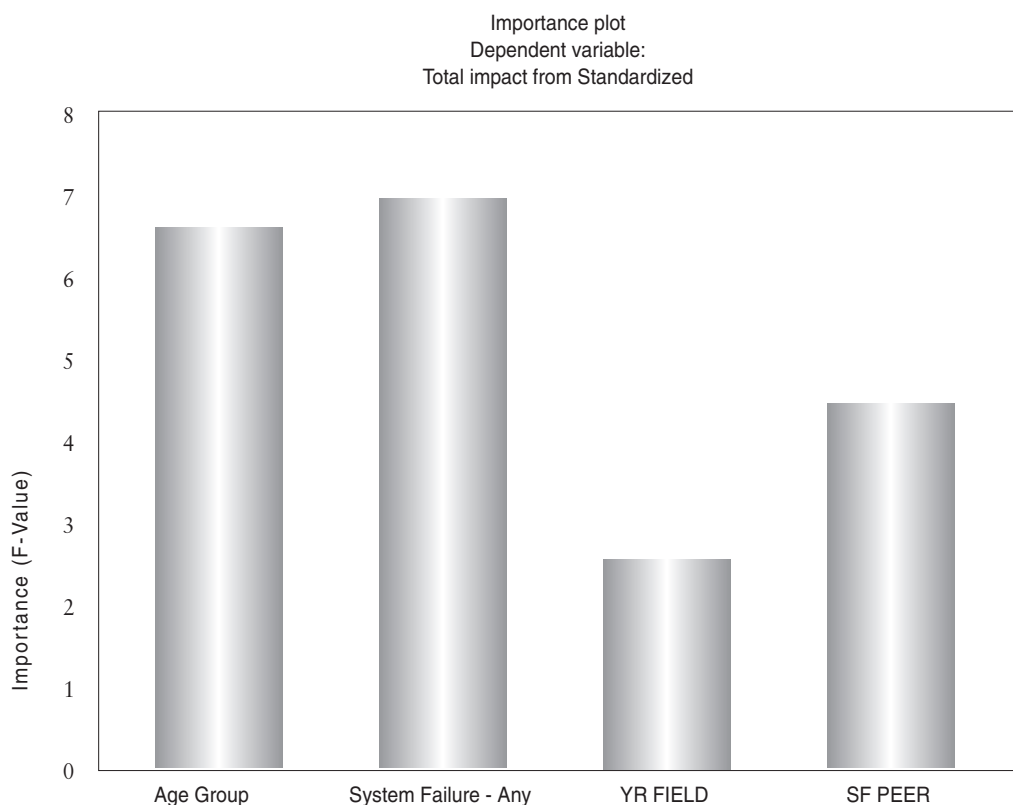
### *Variables Related to Impact*

Using data mining (StatSoft Inc., 2004) we examined Total Impact (the sum of standardized severity, duration and total # of symptoms scores) with the

**TABLE 4**  
*Frequency and Types of Permanent Change*

Negative Change	Count	% of TS Ss	Positive Change	Count	% of TS Ss
Relationships	15	12.3%	Spiritual growth	41	29.9%
Emotions	8	6.6%	Personal skills	35	28.7%
Personal change	7	5.7%	Relationships	18	14.9%
Work impairment	8	6.6%	Increased Awareness	6	4.4%
Change in Belief	5	4.1%	Emotions	1	0.8%

*Figure 1. Data mining importance plot*



predictor variables: age, number of children, years in field, hours worked, support-none, language fluency, types of stresses, types of support failure, gender, marital status, positive change, any permanent change, negative change, catastrophic stressors and relational stressors (See Figure 1).

Both Age and Years in the Field negatively correlated with Total Impact ( $r = -.33, p = .000$ ; and  $r = .22, p = .009$  respectively). By Group analysis

revealed no difference for the young or older missionaries, but the 40 to 60-year-olds had higher Total Impact scores when there was any system failure ( $F(1,77) = 9.2565, p = .00321$ ). There were insufficient cases for By Group analysis of Peer System Failure, but a comparison of those with and without peer system failure showed missionaries with it to have significantly higher standardized Total Impact scores ( $F(1,135) = 4.6398, p = .03301$ ).

### *Variables Related to Permanent Negative Change*

Given the high incidence of permanent negative change (reported impairment in relationships, emotions, work, personal qualities and or beliefs), we were interested in identifying variables that may be associated with it. Again age proved significant, with missionaries experiencing permanent negative change ( $M = 42.7$ ,  $SD = 9.89$ ) being significantly younger than those not experiencing permanent negative change ( $M = 49.8$ ,  $SD = 12.94$ ,  $t(123) = -3.00$ ,  $p = .003$ , Bonferroni correction:  $p = .010$ ,  $df = 121$ ). No significant differences were found for time post-reported incident or years in the field suggesting that this is an age difference rather than just the passage of time. There were also no differences for hours worked per week or host-language fluency.

More arousal symptoms were also found for missionaries with permanent negative change ( $M = 1.35$ ,  $SD = 0.95$ ) compared to those without permanent negative change ( $M = 0.88$ ,  $SD = 0.95$ ;  $t(121) = 2.51$ ,  $p = 0.13$ , Bonferroni correction:  $p = 0.010$ ,  $df = 11$ ). No differences were found between the groups for re-experiencing, depression, avoidance or behavioral symptoms.

Further examination of the permanent negative change data using Data Mining procedures yielded several interesting hypotheses for further study:

1. Females between 40 and 60 years of age, with permanent negative change had significantly higher impact scores than those with no negative change (Wilks lambda = .79564,  $F(3,40) = 3.42$ ). We then looked at which impact scores were contributing to the overall significant finding. Total Impact ( $t = 3.03$ ,  $df = 42$ ,  $p = .004$ ), Symptom Duration ( $t = -2.08$ ,  $df = 42$ ,  $p = .044$ ) and Total Number of Symptoms ( $t = 2.84$ ,  $df = 42$ ,  $p = .007$ ) were higher for those with permanent negative change (1.692, .608, and .542 respectively) vs. females with no permanent negative changes (-.615, -.042, and -.409 respectively). The difference for Perceived Severity scores was not significant, nor were there any significant differences for females younger than 40 or over age 60.

2. For males over 60, there was a significant difference between those having permanent negative changes and those with no change for the impact variables (Wilks lambda = .251,  $F(3,6) = 5.98$ ,  $p = .031$ ). Only the difference in Perceived Severity scores for missionaries over 60 was significant (older missionaries with permanent negative change having

higher scores than those with no permanent change (1.76 vs. -.724,  $t = -2.39$ ,  $df = 8$ ,  $p = 0.043865$ ). There were no significant difference for the Additive Total Impact, Symptom Duration or Total Number of Symptoms scores, or for any of the impact scores for males under 40 or for those between 40 and 60.

3. We next looked at females with permanent negative change for differences in number of symptoms in the symptom clusters, and again found significance (Wilks lambda = .794,  $F(5,61) = 3.17$ ,  $p = .013$ ). All but one cluster, Depression, showed significantly more symptoms for permanent change than those with no permanent change (Arousal:  $F = 7.14$ ,  $p = .010$ ; Re-experiencing:  $F = 4.19$ ,  $p = .045$ ; Avoidance:  $F = 5.43$ ,  $p = .023$ ; Behavioral:  $F = 4.05$ ,  $p = .048$ ). Depression was the only cluster where there was not a significant difference. For males, there were no significant differences between those with permanent negative change vs. no change for any symptom cluster scores.

4. For missionaries reporting negative change it was found that those experiencing non-catastrophic stressors had significantly higher impact scores (Wilks lambda = .713,  $F(3,32) = 4.29$ ). The additive Total Impact Score was significantly higher (1.66 vs. -.244,  $t = 2.09$ ,  $p = .044$ ), but of the three scores comprising it, only Total Number of Symptoms was significantly different, with those having permanent negative change (.776) being higher than those with no change (-.592),  $t = 3.45$ ,  $df = 34$ ,  $p = .001$ .

5. When we used Data Mining to examine differences between relational and non-relational stressors and symptom cluster scores, we found no differences across ages for relational stressors, and a significant difference for non-relational stressors (Wilks lambda = .644,  $F(10,144) = 3.05$ ,  $p = .002$ ), with younger missionaries more symptomatic than the older two groups.

## DISCUSSION

The importance of understanding traumatic stress and its impact on missionaries is captured in one of our subjects' writing: "There's a deep place inside of me that knows what it is like to feel incredible pain. A friend with whom I've shared much described it as having my soul raped." This study found the report of traumatic stress on the mission field to be almost universal (80.1%) and that these experiences carried a significant morbidity. Of those reporting TS, thirty five percent reported

their symptoms to be continuing to this day, on the average almost a decade post incident, and an even larger percent suffered some form of permanent negative change (27%, with an additional 11.5% experiencing both negative and positive changes).

Given this high prevalence, we turn our attention to characteristics of the stressors that are related to the traumatic impact. Although unexpected, our finding that non-catastrophic stressors had greater total impact than catastrophic stressors, is consistent with other findings. Davidson and Baum (1993) found combat exposure not predictive of chronic stress. Similarly, Desivilya, Gal and Ayalon (1996), in a study of terrorist assault victims, reported that the degree of traumatic exposure was not significantly related to the severity of traumatic stress symptoms. Our finding that there was no difference in impact between acute, and slower, gradual onsets further supports this idea and suggests that it is not simply the severity of the stressor that demands our attention. While crisis intervention and other intervention for acute or CIS events remain valuable, these findings suggest that a focus on the broader domain of TS, including both peritraumatic stress symptoms and vulnerability, is needed in both our research and strategies for missionary care.

The interpersonal relationship findings are also of particular interest. Our finding that TS impact was not significantly different for relational vs. non-relational stressors differed from what might be expected based upon the work of Follette, Polusny, Bechtel and Naugle (1996) who found interpersonal stressors to be cumulative in their impact. The interpersonal dimension was important for our missionaries in the area of support structure. System Failure (SF; a construct involving various forms of interpersonal relationship with sending organizations and supervisory personnel) was the most frequent form of stressor reported; the impact on missionaries 40-60 years was significantly greater for those experiencing any form of system failure, and those missionaries reporting peer-SF had significantly higher impact scores than those without it. Further, of those reporting SF, 75% experienced permanent negative change. These interpersonal findings are important because they point to potential buffering and/or ameliorative interventions that can be part of pre-deployment training, in-field intervention, or post-crisis follow-up. Perhaps the most compelling evidence is found in the words of the missionaries themselves: "We had a hurricane and not one of the

leaders called or wrote.", and "No one really reached out to me or was even sensitive or seemed to care about what I was going through ... I felt completely alone and rejected."

We cannot control the occurrence of TS, but we do exercise control over the systems and structures that support the missionaries we send. The value of these structures was demonstrated in Violanti's (1996) study of police spouse survivors, where he found that the higher spouses' satisfaction with police agencies and police fraternal groups the lower their symptom scores, and as the quality of interaction with police friends became more positive, so did their measure of psychological distress. These findings suggest the need for more definitive investigation into the role and characteristics of interpersonal relationships as buffers and, in their failure, as etiologic for TS problems. Since lower levels of preparation for critical incident stress have been shown to be related to greater post incident distress (Marmar, et al., 1996), it would be of particular value to know what type of support systems and structure are most efficacious for TS.

The issue of determining who is vulnerable to future or lasting problems of traumatic stress is an important one, but findings to date on the predictive value of trauma symptoms and symptom groups have been inconsistent. Weiss, Marmar, Metzler and Ronfeldt (1995) reported that a person's post incident level of adjustment was related to symptomatic distress, and that peritraumatic dissociative symptoms were predictive of later symptomatic response. Significance has been reported for intrusive symptoms (Davidson & Baum, 1993; Shalev, Peri, Canetti & Schreiber, 1996), emotional numbing/dissociation (Feeny, Zoellner, Fitzgibbons & Foa, 2000; Flack, Litz, Hsieh, Kaloupek & Keane, 2000; Shalev, et al., 1996), depression (Feeny, et al., 2000; Freedman, Brandes, Peri & Shalev, 1999), arousal/over-reactivity (Difede & Barocas, 1999, Feeny, et al.; Shalev, et al., 1996) and avoidance (Difede & Barocas), while at the same time, lack of significance was reported for intrusion (Difede & Barocas; Feeny, et al.), avoidance (Davidson & Baum, 1993), co-morbid depression (Zlotnick et al., 1999) and arousal (Flack, et al., 2000). In fact, Difede and Barocas posit that symptom severity, rather than type may be what is important due to trauma symptoms being almost universal. In our study we had two interesting findings related to the experience of symptoms. First, and very much congruent with the Difede &

Barocos postulation, both additive Total Impact and Total Number of Symptoms were higher for those reporting permanent negative change. Thus special attention may be warranted for those missionaries experiencing more intense and/or a broader spectrum of symptoms. The association of arousal symptoms with permanent negative change makes their presence noteworthy, and given the evidence for peritraumatic dissociation (Marmar, et al., 1999) as playing a role in symptom production, it would be important to evaluate this experience, and or tendency, in deployed missionaries as well.

Second was the strong and consistent findings associated with age. Younger missionaries were more likely to experience permanent negative change, additive Total Impact was inversely correlated with age, those below 40 experiencing non-relational stressors were more symptomatic, and the younger group was even more likely to report having a TS incident. Our data suggest that this may not be due to maturity and experience on the field or to the passage of time, but in fact may represent a generational difference. This would be quite consistent with the unique vulnerabilities ascribed to more recent generations by Donovan and Myers (1997).

These findings raise practical implications worthy of further consideration and study. First, if these findings are replicated, pre-field training, in-vivo exposure, and the like might be designed to better prepare, and hence buffer to some degree, the more vulnerable group. Also, the fact that older generations were less symptomatic and impacted might suggest that "second career" candidates may require less member care and be less likely to prematurely discontinue their assignment.

The extant literature (See McNeilly & Anderson, 1996, for a good review of stress physiology and aging.) on traumatic experience and age is inconsistent. Ullman (1995) reported a negative correlation between re-experiencing, arousal and avoidance that remained when the age at the traumatic event was controlled. Similarly, Richmond & Kauder (2000) found younger age to be predictive of more psychological distress, and Acierno, et al.(2002) found younger women, relative to older, to be at higher risk for depression and posttraumatic psychopathology following interpersonal violence. But in some studies, age has not proven significant. One possible reason appears to be a severely restricted age range due to the type of trauma under investigation (Tedeschi & Calhoun, 1996; Waysman,

Schwarzwald & Solomon, 2001), and there has been no clear delineation of a true age vs. cohort effect. Clearly further investigation is warranted with this dimension because of the implications for both preparation/selection of missionaries and intervention/support of those in crisis.

Another area of interest is the complex area of gender. Female missionaries between 40 and 60 who had permanent negative change had higher additive Total Impact, Symptom Duration and Total Number of Symptom scores than those women without negative change. They also had more symptoms in the majority of the symptom clusters (arousal, avoidance, behavioral and re-experiencing). The only finding for the men was that for those over 60 who had permanent negative change, there were significantly higher scores on their Perceived Symptom Severity. The data does not suggest that women are at more risk, but rather than being more prone to permanent negative change than men, women in danger of such damage may be more identifiable because of the presence of identifiable symptoms. Depression alone was not significantly different between women with and women without permanent negative change and thus would be excluded as potential indicator to be watched. Again, these findings need to be systematically and prospectively investigated, for if these exploratory findings are replicated, early identification, and thus intervention, would become a feasible extension.

Finally, two thirds of our population, in spite of negative impact, reported positive sequelae to their stressful experiences. This is evidenced in the words of one of the missionaries reporting that following their traumatic incident they had "... spiritually, a deeper ability to trust God's sovereignty and able to see His hand, even in suffering ...". Joseph, Williams and Yule (1993) found that traumatic stress is capable of producing both destructive and salutagenic change, and Tedeschi & Calhoun (1996) argue that positive changes in response to traumatic exposure are as important to consider as the negative changes. This study's findings suggest that positive and negative changes may be occurring discretely, and thus can occur simultaneously, involving different focal areas, i.e. spiritual growth was reported as a frequent positive change while emotions and relationship were more frequent for negative change. In spite of its frequent occurrence, we found no predictive variables (impact, stressor or missionary demographic) for positive change, but the work of Waysman, et al.



(2001) may point us in a fruitful direction. They reported that the more a person demonstrates hardiness, the more positive sequelae they report following traumatic exposure; future investigations would likely profit from exploring the role of hardiness factors within missionaries and their usefulness as training variables.

In conclusion, the findings of this study underscore the importance of understanding traumatic stress in the care and preparation of missionaries. This project has generated important data on the nature, prevalence and impact of traumatic stress in a missionary population. Our approach gathered a great deal of information from this population, but this strength of the investigation also carries with it a cautionary statement. The findings that deal with factors which influence the impact are more tentative since we were hypothesis seeking, and it is our hope that this work will stimulate confirmatory, prospective research which will more clearly define these realities. Further, our measures of symptom clusters (intrusion, avoidance, etc.) were not strong measures that would be typical of a controlled study. Significant findings in this area clearly need to be pursued further as well, as our findings can only provide an estimate of the possible relationships. In this light, we present our results in the form of speculation about meaning and implication, and await definitive, controlled studies to verify or negate the findings reported here. The importance of this pursuit is once again best expressed in the words of one of our participants: "Loneliness is a part of the missionary call. Last time I checked, God was still around, and as long as I keep the big picture in mind, and am committed to the long haul, we are going to make it."

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