

**A Study on Police Stressors, Coping Strategies, and Somatization:
Symptoms among South Korean Frontline Police Officers**

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Abstract:

Using a sample of male police officers in South Korea, this study examined whether police stressors revealed in the western literature are also applicable in the South Korean context. Officers stationed at 16 frontline substations in a large metropolitan city reported the frequency with which they had been exposed to seven classes of police stressors and perceived somatization symptoms. Work-family conflict and victimization at the hands of citizens were revealed as the significant predictors of officers' stress-related somatization symptoms. Unlike western studies, the present study did not reveal moderating effects of coping strategies and social support. Stressors' effects on somatization symptoms, however, were mediated by destructive coping strategies. The research and policy implications of the results and the limitations of the study are discussed.

Keywords: police stress, coping strategies, coping resources, moderator and mediator

A job serves as a rewarding conduit through which one can achieve economic means for survival. It is often the most integral arena of life, where individuals can reach the higher goal of self-actualization. On a different note, employment often exposes individuals to a host of occupational stressors. Over three centuries ago, the father of occupational medicine, Ramazzini observed that any occupation was bound to contain a degree of harmful elements, occupational injuries and illnesses were commonplace, and some diseased employees suffered agonizing deaths while harboring resentment towards their own jobs (Ramazzini, 1940). Work environments are definitely far more desirable in modern societies than the world in which Ramazzini resided. Nonetheless, employees of present day workplaces appear to also experience their share of work-related stresses, diseases, and even deaths (Ganster & Schaubroeck, 1991; Kivimäki et al., 2002).

Among innumerable occupations available in modern society, police work is regarded as one of the most stressful jobs. Police officers are routinely exposed to acute stressors involving violent confrontations with suspects or having to use lethal weapons. They also experience chronic stresses stemming from night shifts, poor work environments, or seemingly ungrateful citizens (Cheong & Yun, 2011). Compared to their historical counterparts, contemporary police officers experience additional “evolving stressors” (Slate, Johnson, & Colbert, 2007, p. 102) as police organizations strive to accommodate emerging political contingencies and societal expectations. For instance, officers in certain locales are now expected to enlist community support in accord with community-oriented policing philosophies, while at the same time implementing zero-tolerance, order maintenance strategies. Victims’ rights groups, increasingly informed citizens, and scrutinizing media are also sources of police stress (Kenney & McNamara, 1999).

Police stress is known to be linked with various health problems. A long line of research illustrates that police officers suffer disproportionately from cardiovascular, gastrointestinal, and metabolic diseases as well as a menagerie of psychological disorders (Brown & Campbell, 1994; Gershon, Barocas, Canton, & Vlahov, 2008; He, Zhao, & Archbold, 2002; Slate et al., 2007; Violanti & Aron, 1994). Research indicates that some form of somatic manifestations of stress, such as insomnia, headaches, and back pain are more common among police officers than in other professions (Payette, 1985). Alcoholism and drug addiction are also more prevalent in policing (Dempsey & Forst, 2010). Police stress is not only harmful to officers’ physical health, but its deleterious effects often spill over to spouses and other family members, leading to marital disputes, divorces, and even interfamily violence. Officers’ stress also affects police organizations through lack of motivation, absenteeism, and ultimate withdrawal. Stressed-out and uncommitted officers are not likely to interact with citizens in a desirable manner, thereby jeopardizing police-

community relations (Brown & Campbell, 1994; Morash & Haarr, 1995).

Given potentially far-reaching ramifications of police stress, an impressive body of research has examined a list of police stressors and their consequences (Anshel, 2000; Gershon, 1999; He et al., 2002; Kurtz, 2008; Manzoni & Eisner, 2006; Violanti & Aron, 1994). Extensive literature further indicates that police stressors do not create adverse outcomes unidimensionally; rather, exposure to the same stressors can translate into different outcomes depending on individuals' coping strategies. Some even argue that coping strategies are more important in determining the consequences of stress than the stress itself (Morash & Haarr, 1995; Violanti, 1992). In addition, coping resources, such as social support from family and friends, have garnered research attention as also having a moderating effect on the consequences of stress (Gershon et al., 2008; Morash et al., 2008). Although researched very little among police scholars, stress researchers of other occupations increasingly hint at the possibility that coping strategies and resources can play a mediating role between stressors and their consequences (Hudek-knežević, Kardum, & Maglica, 2005; Rusli, Edimansyah, & Naing, 2008).

Research on police stressors, their ramifications, and the nature of the linkage between them abounds in the western context. In East Asia, however, police stress studies published in English are few and far between. In the Korean context, a review of literature identified only two studies published in English so far, both of which were led by Morash (Morash et al., 2008; Morash, Cho, Jeong, & Hoffman, 2006). Due to different history and culture, East Asian police work environment, stressors, and coping strategies are likely to differ from those found in the west. For instance, Korean and Japanese workers are far more likely than their American counterparts to put work before themselves or family (Yun, 2008). Their unrelenting emphasis on work at the expense of health and personal lives often result in tragic death in numbers, rendering a newly coined term "Karoshi (過勞死)" to be uttered in

everyday conversations at workplaces in Japan and Korea. *Korashi* in Japanese literally means “death from overwork,” which is not a rare phenomenon where employees in their forties or fifties suddenly die of heart attacks or strokes due to work stress. This unfortunate outcome is largely hidden from the eyes of westerners, who view with a tinge of acclamation the rapid rise of these countries from the devastation of World War II to economic prominence. Nevertheless, work stress and its health impacts in some East Asian countries are a grave issue.

Police officers in South Korea appear to experience a high degree of work stress and adverse health outcomes. Among a total of 121 officers who died in the line of duty from 2003 to 2008, surprisingly seventy one (58%) of them died due to overwork and stress-related illnesses (Shin & Lee, 2008). Deaths from overwork occur in other occupations too. Yet, a study based on available statistics show that the figure for policing is typically twice as high as the figures for other public officials in South Korea (Kim, Kim, & Paek, 1997).

Given different cultural heritages and work environments, it largely remains an empirical question whether stressors and related dynamics found in the western police equally bear on the police of East Asia. Against this backdrop, the current study extends the literature on police stress utilizing a unique sample of male Korean police officers who are stationed at street-level substations called *Jigoodaes*. Focus is given to ascertaining whether previously identified police stressors in the western context bear on Korean frontline officers. Given the grave consequences of stressors on health in South Korea, the current study particularly examines the effects of police stressors on officers’ stress-related somatization symptoms. Considering extant literature on the role of coping strategies and resources as moderating factors, the current study also assesses the extent to which coping strategies and resources interact with police stressors in the generation of somatization symptoms. Finally,

employing a structural equation modeling approach, we examine whether coping strategies and resources also serve as mediators that link stressors and the outcome measure.

POLICE STRESSORS IN THE SOUTH KOREAN CONTEXT

Police stressors have been well researched in the western literature. Police stressors applicable to Korean frontline officers can be classified into five different clusters. The first cluster of stressors centers on the element of danger. Although policing is not the most dangerous occupation in modern civil society, it is the only job except for the military that entails regular encounters with hostile and violent individuals. Danger permeates policing and it consequently shapes police subculture and so-called “police personality” (Skolnick, 1966). Officers typically report stressors linked with danger highly stressful (Violanti & Aron, 1994), which include having to make violent arrests, having to take another human being’s life in the line of duty, gruesome crimes scenes, sustaining injury, or the death of a partner (He et al., 2002; Violanti & Aron, 1994). Despite the central place occupied by danger in the western police stress research, South Korean police officers are not likely to perceive danger as an equally potent stressor. Violent crime rates are far lower in South Korea than in the United States (Yun, 2008). Private citizens’ gun ownership is strictly prohibited. Thus, an officer being shot at by a criminal is an incident unheard of. Even patrol officers are not permitted to carry guns home, and guns should be returned to a secured storage at the end of a shift. Further, officers rarely use a firearm, partly because incidents requiring the use of a gun rarely arise and partly because the use of firearm can be ensued by lawsuits and a list of potential administrative sanctions (Cheong & Yun, 2011). Possibly for this reason, danger did not turn out a significant predictor of stress in either of the two aforementioned Korean studies by Morash and colleagues (Morash et al., 2006; 2008).

The second group of stressors is commonly referred to as organizational stressors. While laypeople may regard dangerous encounters with violent criminals as most stressful to police officers, research reveals that officers perceive stressors intrinsic to the police organization are more stressful (Brown & Campbell, 1994; Gershon et al., 2008). The bureaucratic nature of police organizations are characterized by impersonal rules and a strict chain of command. In such organizations, line officers' inputs are rarely solicited in making decisions that impact them on a daily basis. Failure of communication between managers and officers, unfair practices of supervision and controversial performance rating, and lack of support from supervisors are also identified as organizational police stressors (Morash et al., 2008; Violanti & Aron, 1994). Paramilitary nature of police organizations also tends to breed alienation among police officers (Golembiewski & Kim, 1991), which can erode communication and cooperation between colleagues.

Compared to the egalitarian culture of the United States, East Asian, particularly Korean, culture is essentially hierarchy-oriented (Yun, 2008). Accordingly, Korean police organizations are more bureaucratic and authoritative than their American counterparts, thereby markedly restricting line officers' inputs to organizational decision-making processes (Morash et al., 2008). In the highly centralized Korean police, street officers' inputs are particularly limited because virtually all the directives, policies, and regulations are created and passed down from the headquarters of the Korean National Police Agency in Seoul. Part of the problem is that those who draft the directives and policies at the headquarters are mostly middle- and high-level managers who entered policing via a lateral entry system as lieutenants.¹ Street officers who began their careers from the bottom rung of the ladder become cynical, believing that managers at headquarters do not know the "streets." Line

¹ The South Korean police use a lateral entry system, in which annually 120 graduates of the Korean National Police University in their twenties are directly hired as lieutenants.

officers also perceive that promotional opportunities are limited to them because of the intervening lateral entry system.

The third group of stressors can be termed poor work conditions. In the era of global financial recession, political forces and citizens alike demand police to do more with less. The present day police are thus saddled with lack of resources, including inadequate staff and equipment shortages. Relatedly, undue overtime, heavy workload, and shift work have been identified as police stressors (Brown & Campbell, 1994; Violanti & Aron, 1994). Korean policing is not an exception in terms of poor work environments. Although conditions have improved recently, off-duty officers only a decade ago were obligatorily mobilized in cases of major criminal incidents or crackdowns without overtime pay. Work conditions of Korean officers still do not seem to fare as well as large police departments in the U.S. One indication is the ratio of citizen per officer. As of 2008, it was 354 citizens per officer in the U.S., while the Korean figure was 509 citizens per officer (Korean National Police Agency, 2008). The new president-elect, Park Geun-hye, is slated to hire twenty thousand more officers as per her election promise.

Another group of stressors, related to poor work condition, is work-family conflict. Research shows that unique aspects of police work, e.g., night shifts or heavy workload, adversely influence a police officer's role as a family member, rendering the job psychologically and physically more stressful (Galinsky, Bond, & Friedman, 1996; He et al., 2002). Officers that are physically and emotionally exhausted from work are probably not in the best condition to take care of their family members. Thus, fatigue and stress generated at work can often spill over to the spouse at home, producing marital disputes and conflicts. Accordingly, studies have identified this sort of work-family conflict as a significant predictor of police stress and burnout (Burke, 1993; Jackson & Maslach, 1982). Korean police officers are not new to heavy workload and mandatory overtime. In addition, Koreans

consider workplace morale and camaraderie critically important, an age-old Confucian heritage of regarding harmony as an apotheosis of desirable social interactions (Morash et al., 2008; Yun, 2008). In Korea, a long-established custom to foster workplace morale is a hearty meal mixed with generous consumption of alcohol, called “Hwesik (會食).” Meaning “eating together” in Chinese, hwesiks starts with a dinner at a restaurant and can often continue over midnight changing venues to bars and to karaokes. Given the salience placed on harmony in Confucian edicts, Korean employees naturally feel obligated to attend all hwesiks and drink all the liquor offered by colleagues.² Frequent overtime and alcohol consumption are more than likely to sap Korean workers’ energy to tend to family matters. It is common for a middle-aged male employee not to be able to see his children during weekdays because he comes back home after the children have fallen asleep and goes to work before they wake up.

The final category of police stress—negative police image—is particularly pertinent to the Korean police. Since fundamental mandates of the police entail enforcing the law, portions of the citizenry are likely to harbor a negative perception towards the police. In South Korea, it is not uncommon for police officers to encounter citizens who covertly and even overtly deride officers calling them “shit-flies.” This phenomenon of a fall of public authority is an unfortunate aftermath of Korean police history, where police were used as minions of military regimes during the 1970s and 1980s. During that time, the police openly engaged in election frauds and persecution of students’ democratic movements (Cheong & Yun, 2011). Since the 1990s when a full-blown democracy was instituted, however, the police have frequently been belittled and disparaged by citizens as a symbol of the fallen autocratic regime. Antipathy toward the police was openly expressed by citizens who were drunk. Emboldened by the Korean culture that largely condones heavy drinking and

² A Korean custom is that one drinks alcohol only when others sitting together fill his/her empty cup. The receiver is supposed to drink it up.

behavioral complications resulting from heavy drinking (Namkoong, Lee, Lee, Choi, & Lee, 2003), drunken citizens would yell, hit, kick, and spit at street officers who attempted to enforce the law. Night shift officers at substations in big cities had to deal with irate drunkards almost every night. This unique problem of the Korean police recently brought about an unprecedented “war on drunkards” declared by the head of Seoul Metropolitan Police Agency in 2012. Austere crackdowns on drunkards, however, do not seem to eradicate the problem. A recently televised incident nationally is a case in point. A middle aged drunken male charged into a police substation driving an excavator, demolishing the walls and patrol cars. Surprisingly, the mere reason was that he had been issued a ticket for illegal parking (Kim, 2012).

COPING STRATEGIES AND RESOURCES

An uninformed observer may assume a unidimensional view in which good and bad experiences at workplaces will inevitably lead to good and bad health outcomes, respectively. However, extensive research on stress provides probative evidence that the effects of stressors can vary depending on individuals’ coping strategies and coping resources. Put differently, coping strategies and resources serve as moderators of the impacts of stressors. At the risk of oversimplification, coping strategies can be organized into two clusters—constructive coping and destructive coping (Burke, 1993; He et al., 2002). Constructive coping is construed as more effective in reducing occupational stress. Examples of constructive coping include cognitive problem-solving strategies, talking with family members or friends about stressful experiences, reliance on religion, or physical exercise (Gershon et al., 2008; He et al., 2002). In contrast, destructive coping can result in maladaptive outcomes such as psychological and physical health problems. Self-destructive methods, including increased drinking, smoking or drug use, and avoidance techniques are a

few examples of destructive coping. Research shows that police officers who employ destructive coping practices are likely to suffer from chronic stress, burnout, withdrawal from work, or serious health problems (Gershon et al., 2008; Violanti & Aron, 1994).

In addition to varying coping strategies that individuals may attempt to employ, coping resources, having access to related coping resources, such as social support from family, friends, or co-workers, also appear to influence the effects of job stressors. Thompson, Kirk, & Brown (2005) found that family cohesion and support from superiors at work ameliorate some of the adverse effects of police stressors. Police peer support groups have been also suggested as an effective way of addressing work-related stress (Gershon et al., 2008; Slate et al., 2007). Conversely, officers who lack such support from family or peers appear particularly vulnerable to the negative effects of stressors (Gershon et al., 2008). While studies conducted in western countries, and especially in the U.S., reveal moderating effects of coping strategies and resources, Morash et al.'s (2008) research on a sample of rural Korean officers did not reveal such moderating effects. Although they interpreted the null findings as a result of collectivistic Korean culture, the number of items used to tap multi-faceted dimensions of stressors and their consequences were rather limited.

The moderating effects of coping mechanisms have drawn considerable attention from police stress researchers. However, research on mediating roles of coping strategies is relatively rare. Coping can be regarded as conscious use of cognitive or behavioral strategies that are intended to reduce perceived stress or improve a person's resources to deal with stress (Anshel, 2000). If coping is an intentional ameliorative act occurring *after* stress is felt, then coping can be reasonably understood as an outcome variable of stressors. Thus, it is not only possible but also quite plausible to build a conceptual framework where stressors cause particular coping strategies, which in turn influence the outcome of stressors. Generic stress research has extensively investigated coping's mediating effects (Hudek-knežević et al., 2005;

Rusli et al., 2008). Yet, there exists a paucity of police stress studies that have examined such a mediation hypothesis, a gap to be bridged by further research.

In the current study, we extend the existing literature by examining the generalizability of police stressors with regard to stress-related somatization symptoms among a sample of South Korean police officers. Moderating effects of coping strategies and resources are also assessed. Given the paucity of police stress research that conceptualizes coping as a mediating variable, we further examine the link between stressors and somatization symptoms that is mediated by coping strategies and resources.

DATA AND METHOD

SAMPLE

The South Korean police force is a highly centralized national police force consisting of over 100,000 sworn police officers. In terms of geographical arrangement, there are seven metropolitan agencies and nine regional agencies across the nation with Korean National Police Agency (KNPC) at the top of the organizational chart. For the present study, Daejun Metropolitan Police Agency (DMPA) was selected, primarily because the administration of the survey seemed relatively easy due to the fact that the first author of this study was serving as a police captain in the agency at the time of data collection.

Daejun is a metropolitan city with a population of 1.5 million, and its crime rates and trends are quite comparable to those of other large metropolitan cities in South Korea (Korean National Police Agency, 2009). Within DMPA, five police stations exist offering law enforcement services across the entire city, with about 500 officers serving in each station. Officers in police stations perform regular police functions except for common patrol and direct responses to call for service. Patrol and responses to call for service are performed

by frontline officers who are stationed at police sub-stations called Jigoodaes. Quite similar to the Japanese Koban model, which is conducive to instilling a sense of officers' ownership of the assigned community (Bayley, 1991), about 50 officers at each Jigoodae are in charge of patrol and emergency response services in the assigned area 24/7. Also the Jigoodae officers are at the forefront of community policing, enlisting community support and offering direct services to community members.

In January 2010, the first author contacted the heads of all of the 19 Jigoodaes within DMPA enlisting participation in the study. Sixteen of them agreed to participate, while others refused participation citing administrative inconveniences. Yet, since police officers within DMPA regularly rotate across the five police stations on a three to five year basis, there is no particular reason to believe that officers who did not participate in the study were qualitatively different from those who did.

A lieutenant at DMPA, whose duty was to tour each Jigoodae on a daily basis serving as a crime prevention consultant, volunteered to administer the survey. During his tour, he explained the purposes and procedures of the survey to officers attending roll-calls at each Jigoodae, guaranteeing voluntariness, anonymity, and confidentiality. He distributed questionnaires and collected them on his next tour. The survey questionnaire tapped varying domains associated with police stress including perceived stressors, coping strategies, social support, and stress-related somatization symptoms. A total of 800 questionnaires were distributed and 593 were returned with a response rate of 74 percent. Four of them were excluded due to insufficient data. Only 19 female officers (3.2%) participated in the survey. Given that less than 5% of the Korean police force is female and they are less likely to volunteer for a Jigoodae assignment than their male counterparts, the lopsided gender distribution in the sample was not unexpected. Even so, we excluded female officers from analyses because the dynamics underlying police stressors, coping strategies, and their

consequences appear to diverge considerably across the gender line (He et al., 2002; Kurtz, 2008). Consequently, our analytical sample consists of 570 male officers.

MEASURES

Dependent Variable

The items for the dependent variable are drawn from the brief symptom inventory (BSI), a brief form of the Symptom Check List 90 (Derogatis & Melisaratos, 1983). The original BSI instrument taps nine dimensions of psychological and physical symptoms of stress. Among them, the dimension of somatization constitutes the dependent variable in the current study, which captures perceived dysfunctions of cardiovascular, gastrointestinal, respiratory, and other systems with autonomic mediation. Specifically, we used six items that measure the self-reported frequency with which respondents experienced heart pain, faintness or dizziness, headaches, nausea or upset stomach, trouble getting one's breath, and a lump in the throat during the past 12 months. Response categories ranged from never (1) to almost always (5). The same items have been used by other studies on police stress (Gershon, 1999; He et al., 2002).

The instrument's psychometric validity has been supported in numerous studies conducted in the USA (see Derogatis & Savitz, 1999). Since it has not been used for Korean police officers, however, we first tested the six items' factorial structure using exploratory factor analysis (EFA). A unidimensional factor (eigenvalue = 3.98) was extracted with high loadings ranging from .76 to .92. Confirmatory factor analysis (CFA) was then performed to test the validity of a single factor structure. The overall fit of the model was acceptable, $\chi^2(7) = 11.03$, $p = .14$. Other fit indices, such as CFI (.99) and RMSEA (.03) converged to indicate a good model fit, given typically accepted criteria of the fit indices in the literature (Hu & Bentler, 1999; MacCallum, Browne, & Sugawara, 1996). Similar to this dependent variable,

all of the latent factors used in this study were assessed using both exploratory and confirmatory factor analyses. Survey items used for each factor are presented in Appendix 1.

Police Stressors

Although an extensive body of literature exists on police stressors, it is not certain whether the stressors ascertained in the western literature also bear equally well on police officers in South Korea. To identify stressors most applicable to Korean police officers, the first author of this study conducted unstructured interviews with about twenty Jigoodae officers during the winter of 2009, taking advantage of formal meetings and social gatherings occurring at DMPA. The interviews, in tandem with an extensive review of the literature, revealed a total of 27 potential stressors. The majority of the stressors were essentially identical to those found in the western literature (Beehr, Johnson, & Nieva, 1995; Gershon et al., 2008). Yet, stressors unique to Korean frontline officers were also identified including dealing with drunkards, protests management, and mediating interpersonal conflicts.

Responding officers were asked to report the frequency with which they had experienced potential stressors during the past 12 months, given a five-point answer category ranging from never (0) to daily (4). Responses from the 27 stressors were analyzed following the aforementioned EFA and CFA procedures, in conjunction with Cronbach's alpha tests. Six of the potential stressors—e.g., use of weapons, arresting violent suspects, being injured during work—were dropped from final analyses because they did not load high on any extracted factors. In view of relatively low crime rates, strict prohibition of gun ownership of citizens, and limited use of police weapons in South Korea (Cheong & Yun, 2011), it stands to reason that these items can be excluded from police stressors. Model modification procedures by way of model fitness and modification indices of Mplus produced six final latent factors out of 21 police stressors. They include poor work condition, negative police image, authoritative culture, lack of collegiate cooperation, work-family conflict, and lack of

supervisory support. Appendix 1 demonstrates the latent constructs, individual items associated with each construct, and Cronbach's alphas.

In addition, we factored in the unique phenomenon of "fall of public authority" in South Korea as another separate police stressor by measuring how often officers had experienced citizens' aggression and violence toward them during the past 12 months. Eight items ($\alpha = .86$) were employed encompassing derogatory remarks (2 items), verbal threats (2 items), assault with physical force (2 items), threat with a weapon (1 item), and assault with a weapon (1 item). Response categories range from never (0) to almost every day (4).

Coping Strategies

A modified version of 13 items from the Police Coping Scale developed by Beehr et al. (1995) was used to assess coping strategies. Respondents were asked on a five-point answer scale ranging from 1 (never) to 5 (always) to report how often they adopted each of the 13 strategies when they perceived work-related stress. Following He et al.'s (2002) approach, we grouped these items into two subscales—constructive and destructive coping strategies. Constructive coping strategy involves positive and active responses to work-related stresses, such as talking to spouse or friends about the problem, relying on religion, problem-solving through plans, and physical exercise (4 items, $\alpha = .63$). Destructive coping entails negative and avoidance measures to deal with perceived work-related stress, such as staying alone, smoking, getting angry with family members, hitting family members or other individuals, throwing things, drinking alcohol, gambling, acting as if nothing happened, and requesting a transfer (9 items, $\alpha = .73$).

Social Support

Four items ($\alpha = .81$) were used to tap the extent to which police officers can receive social support when they perceive occupational stress. Specifically, respondents were asked to indicate how much they agree to the following statements with regard to work-related stress: I have many people who I can talk to; I can rely on family and friends; I can totally depend on my colleagues; Camaraderie in my shift is very high. Response categories ranged from 1 (definitely no) to 5 (definitely yes).

Control Variables

To help account for potential spuriousness, four demographic control variables were used. Race is of no particular meaning in this sample because all respondents are of Korean descent. Education was measured on a seven-point scale ranging from high school (1) to graduate degree (7). Tenure is a continuous variable measured in years. Rank ranges from policeman (1) to captain (5), where, contrary to police ranks in the USA, there is an additional rank (senior police) between policeman and sergeant. Marriage is a binary variable with a value of 1 denoting “married.” Age was also measured, but was dropped from final analyses due to its high correlation ($r = .93$) with tenure. Fifty-five percent of the sample had education beyond high school. A vast majority (82%) held the rank of either a sergeant or lieutenant, both of which are largely considered non-supervisory positions within Jigoodaes’ context. Most of the sample (94%) was married, and the mean age was 46.

ANALYTIC STRATEGY

Missing information was minimal, with most variables missing in less than 2 percent of the sample. The only exception was tenure, which was missing in 3.5 percent of the sample. Since missing data under 10 percent can generally be ignored except when the

missing pattern is nonrandom (Raymond & Roberts, 1987), we used multiple imputation and list-wise method simultaneously and compared the two results. They were largely identical, indicating that any bias resulting from the missing data pattern was negligible. Thus, for main and interaction effect models, hierarchical regression analyses were conducted using list-wise method resulting in a final analytical sample of 545 male officers. Structural equation modeling was employed to test the mediation hypothesis using Mplus Version 7 (Muthén & Muthén, 1998-1992).³ Since SEM allows for the retention of respondents with missing data using Full Information Maximum Likelihood, the full sample of 570 officers was used for analyses. For hierarchical regression analyses, the indicators comprising each construct were summed and were used as scales. In structural equation modeling, all items were used as item parcels, creating latent constructs instead of scales.

RESULTS

A non-negligible number of the officers in the sample reported having experienced the six indicators of somatization symptoms. For instance, about 6% of them reported having frequently experienced chest pains, dizziness, and headaches, and more than 8% reported having nausea or upset stomach frequently. The mean for the somatization scale was 5.08 (SD = 4.91, range = 0 – 23). Table 1 demonstrates summary statistics for all the variables used in the analyses as well as bivariate correlations between the variables and the outcome variable. Comparing individual variables' mean values against their ranges, it appears that officers perceive their work condition to be generally not satisfactory and police image in the

³ It would have been more consistent if we had employed structural equation modeling to test interaction effects as well. Yet, testing interaction in latent variable models is very rare and can be accommodated by only a couple of statistical software packages such as Mplus. As of this writing, however, Mplus is still not capable of providing standardized estimates and modification indices (Linda Muthén, personal communication, January 23, 2013).

eyes of the public not quite positive. Officers reported that they have been relatively frequently victimized by citizens. Also the officers in the sample seem to employ destructive coping techniques frequently. Looking at correlation coefficients in the far right column, all police stressor scales are positively and significantly linked to reported somatization symptoms. Regarding coping strategies, destructive coping demonstrates the highest correlation coefficient ($r = .58, p < .001$). Contrary to expectation, constructive coping is also positively associated with the outcome variable; yet, the magnitude of the association appears weak.

MAIN EFFECTS AND MODERATING EFFECTS

To test the main effects of police stressors and moderating effects of coping strategies and social support, hierarchical regression analyses were employed. Because police officers in the sample are nested in Jigoodaes, bias can result from observations that are not independent. To guard against this clustering bias, regressions were performed using the Huber-White robust standard errors. As a first stage of hierarchical regression, the somatization symptom scale was regressed on demographic controls as shown in Model 1 of Table 2. Seven police stressors, including victimization, were then entered in Model 2, while coping strategies and social support were added in Model 3. Significant demographic predictors in Model 1 lost their predictive efficacy in Model 2. Among police stressors, authoritative culture lost its significance in Model 3. Looking at standardized regression coefficients in Model 3, destructive coping ($\beta = .45$) best explains variation in somatization symptoms, followed by work-family conflict ($\beta = .23$), social support ($\beta = -.15$), and victimization ($\beta = .11$). All other variables were non-significant. As the models hierarchically progressed, R-square values were also increased substantially. For instance, the addition of police stressors to the demographic model increased the R-square by .27, which was statistically significant, $F(7,$

533) = 26.45, $p < .001$. The full model explained a 46% of the variation in the outcome measure.

Table 1. Summary Statistics and Bivariate Correlations with Somatization Symptoms

Variable	<i>Mean</i>	<i>SD</i>	<i>Range</i>	Somatization
Somatization	5.08	4.91	0 - 23	-
Poor work condition	1.74	5.51	0 - 20	.32***
Negative police image	6.61	3.21	0 - 12	.27***
Authoritative culture	9.23	7.71	0 - 28	.42***
Lack of collegiate cooperation	1.55	1.88	0 - 8	.31***
Work-family conflict	1.83	2.07	0 - 12	.44***
Lack of supervisor support	1.61	1.92	0 - 8	.36***
Victimization	11.04	4.86	0 - 27	.29***
Social support	12.90	4.91	0 - 23	-.23***
Constructive coping	9.78	2.86	0 - 27	.09*
Destructive coping	15.03	4.45	0 - 35	.58***
Age	46.1	7.27	25 - 60	-.01
Education	2.83	1.83	1 - 7	.09*
Tenure	19.24	7.75	0 - 36	-.01
Rank	3.19	.82	1 - 5	-.04
Marriage	.934	.24	0 - 1	.07

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

Having examined main effects models, we turned to testing effects of all the possible interactions between individual stressors and constructive coping, destructive coping, and social support, respectively. To account for potential collinearity, we constructed 21 interaction terms (7 stressors x 3 moderators) via mean centering (Jaccard, Turrisi, & Wan, 1990). Individual multiplicative interaction terms were added separately to Model 3, meaning that a total of 21 separate regression equations were estimated. Surprisingly, none of the interaction terms exhibited statistical significance. Thus, the results are not presented in a tabulated format.⁴

⁴ We also performed auxiliary analyses in which interactions terms between four demographic variables and three moderators were added to the full model. Again, none of the interaction terms showed statistically meaningful effects.

MEDIATION EFFECTS

Having not found any moderating effects of coping strategies and coping resources, we then assessed their mediating effects using structural equation modeling. For parsimony's sake, we excluded measures that did not show any statistical significance in the full model in Table 2. Thus, the structural model encompasses two stressor constructs—work-family conflict and victimization—as predictors and destructive coping and social support as mediators.⁵ To account for clustering bias as well as the violation of multivariate normality assumption, maximum likelihood estimation with robust standard errors (MLM) was used for all SEM analyses. MLM uses standard errors and a mean adjusted χ^2 test statistic that are robust to assumption violations, offering robust versions of CFIs and RMSEAs (Byrne, 2012).

Table 2. Hierarchical Regression Analyses on Association between Somatization Symptoms and Predictors

Variable	Model 1		Model 2		Model 3	
	β	SE	β	SE	β	SE
Education	.10*	.12	.02	.11	.02	.10
Tenure	.12	.05	.07	.04	.03	.04
Rank	-.13	.43	-.06	.37	-.01	.34
Marriage	.09*	.83	.07	.77	.05	.70
Poor work condition			.03	.05	.03	.05
Negative police image			-.04	.07	-.04	.07
Authoritative culture			.17*	.04	.07	.04
Lack of collegiate cooperation			.01	.12	-.05	.11
Work-family conflict			.28***	.13	.23***	.12
Lack of supervisor support			.07	.14	.02	.12
Victimization			.13**	.04	.11**	.04
Constructive coping					.02	.05
Destructive coping					.45***	.04
Social support					-.15***	.06

⁵ We additionally ran an SEM model employing all of the stressor measures. Because the results were not substantially different, the results of the parsimonious model are presented.

F	3.17**	18.16***	32.47***
R^2	.02	.27	.46
ΔR^2		.25***	.19***

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

We first examined the measurement models for each of the latent factors aforementioned. Common to many SEM studies, chi-square statistics exhibited an insufficient model fit (i.e., $p < .05$), except for the outcome measure. However, given that chi-square statistics are overly sensitive to sample size (Byrne, 2012), we paid more attention to alternative fit indices such as Comparative Fit Index (CFI) and Root Mean Square Error of Approximation (RMSEA). All models proved to have good or “close fit” when CFI ($>.90$) was used as an incremental index of fit (Hu & Bentler, 1999) and RMSEA ($<.05$) was used as an absolute fit index (MacCallum et al., 1996). With regard to RMSEA, Mplus reports a 90% confidence interval for a RMSEA value. The confidence intervals for the latent factors included in analyses were all narrow, and their upper bounds were lower than the cut-off ($.06$) suggested by MacCallum et al. (1996). We therefore accepted the measurement models and proceeded to test the structural model.

Unlike the moderation hypothesis, the results from SEM structural modeling supported the mediation hypothesis. Although the chi-square statistic did not indicate a good fit of the model ($p < .05$), we concluded that the model fits the data relatively well given acceptable values for alternative fit indices (CFI = .94, RMSEA = .04). In addition, a considerably large proportion of the variance in the outcome latent factor was explained by the model ($R^2 = .63$). Figure 1 is the pictorial representation of the results of the structural equation modeling, showing standardized structural regression coefficient estimates. Relatedly, Table 3 presents standardized direct, indirect, total indirect, and total effects of the

two predictors. As can be seen in Figure 1, work-family conflict exerts direct effects ($\beta = .22$, $p < .001$) on somatization symptoms. Concomitantly, work-family conflicts' effects on the symptoms are largely mediated by destructive coping. In effect, the positive indirect effects exerted via destructive coping ($\beta = .29$, $p < .001$) are larger than the direct effects ($\beta = .22$) (see Table 3). Additionally, work-family conflict is indirectly and negatively linked to the outcome measure via social support. The total indirect effects of work-family conflict, which are partially canceled each other out due to opposite directional effects of structural coefficients for the two mediating factors, are still larger than the direct effects (.31 vs. .22 in Table 3).

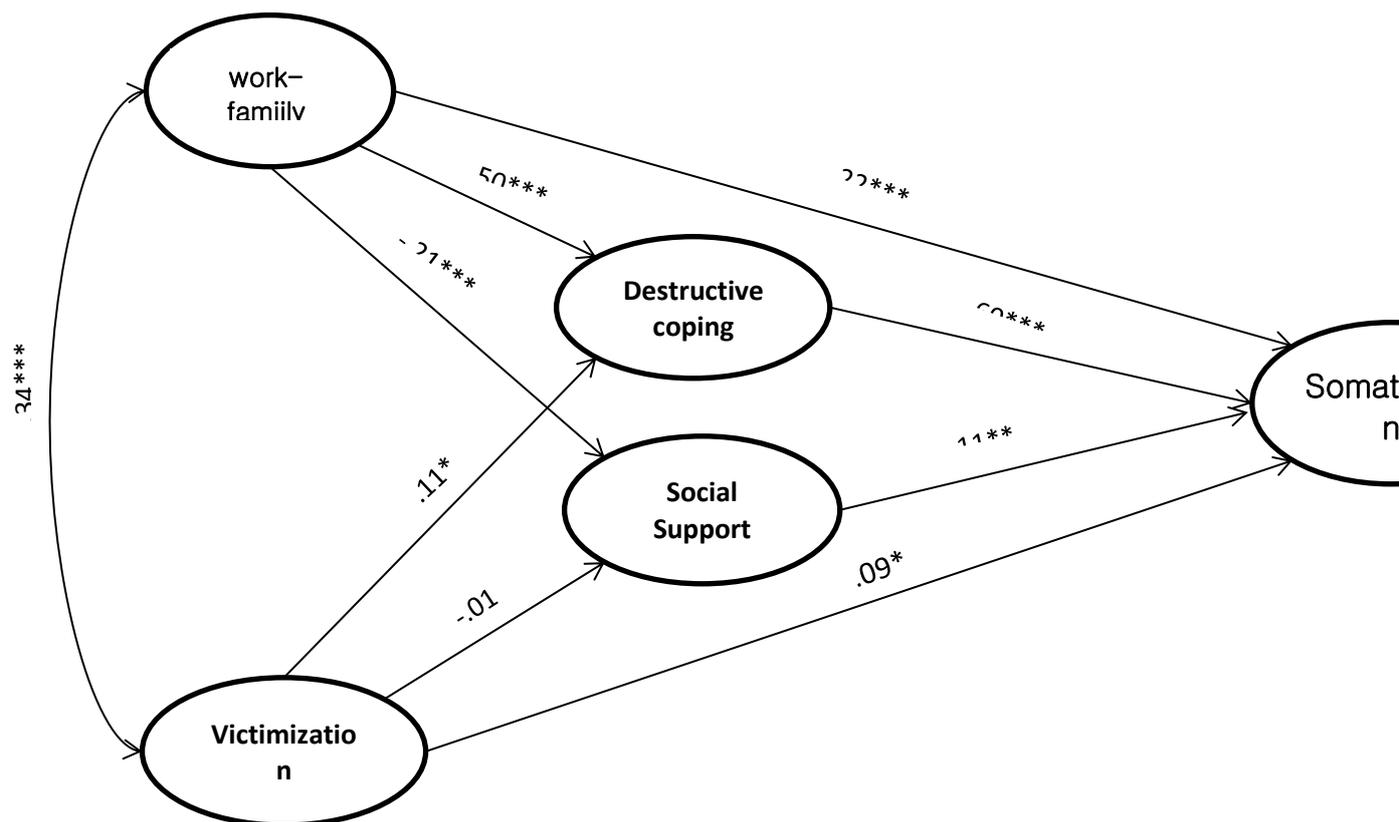


Figure 1. A structural model showing direct and indirect effects of police stressors and mediators on physical symptoms

Victimization's direct effects on physical symptoms are also statistically significant, albeit weak in magnitude ($\beta = .09$, $p < .05$). While work-family conflict was mediated by both

destructive coping and social support, victimization was mediated only through destructive coping ($\beta = .07$). In all, stress-related somatization symptoms of the officers in this sample were mostly affected by direct and indirect effects of work-family conflict. Its indirect effects through destructive coping on the symptoms were positive, while its indirect effects through social support were negative.

Table 3. Standardized Direct, Indirect, Total Indirect, and Total Effects of Work-family Conflict and Victimization on Somatization Symptoms

Predictor	Mediator	Direct effect	Indirect effect	Total indirect effect	Total effect
Work-family conflict		.22**			
→	Destructive coping		.29***	.31***	.53***
→	Social support		.02*		
Victimization		.09*			
→	Destructive coping		.07*	.07*	.15**
→	Social support		.01		

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

DISCUSSION

The present study examined the predictive efficacy of seven clusters of police stressors on somatization symptoms among a sample of male frontline police officers in South Korea. Moderating as well as mediating effects of coping styles and resources were also assessed. The results showed that work-family conflicts and victimization were two primary stressors that predicted somatization in statistically meaningful ways. Other stressors, such as poor work condition, negative police image, and authoritative culture, were significantly associated with the outcome measure at the bivariate level; yet, the significance dissipated in

the full model. This finding differs from western studies, which largely show significant effects of these stressors. Also, contrary to studies conducted in the U.S. and other western countries, none of the coping strategies and coping resources exhibited moderating effects in the current study. They, nevertheless, served as mediators linking the nexus between work-family conflict and somatization symptoms.

Work-family conflict has shown a robust association with the outcome measure throughout analytical steps in this study. Its main effects as well as mediating effects were statistically significant and their magnitudes were larger than any other predictors' effects. As revealed in the western literature, irregular work schedules such as night shifts and the intense nature of certain police work may contribute to work-family conflicts in the current sample. We speculate, however, that factors unique to the Korean culture and to the Korean police may also have played a considerable role. South Korea was one of the poorest countries merely four decades ago. During the intervening period, it has accomplished what is often referred to as an economic miracle (Yun, 2008). The economic miracle accompanied with rapid industrial growth was achieved largely through utmost industriousness and no-nonsense work ethic of Korean workers (Kim & Park, 2003). Sharing the same work ethic, Korean police officers have almost always placed work before family. It is common to observe off-duty officers go to work voluntarily or because they have been mandatorily mobilized. One study revealed that a sample of detectives reported having worked 80 hours per week (Shin & Lee, 2008). In this hierarchical organization, there has been an unspoken rule that subordinates should not leave work before the supervisor leaves even after the regular working hours. Due to the collectivistic culture, not attending alcohol parties (*hwesiks*) after work is inevitably frowned upon.

Work-family conflict as a source of stress has particular bearing on the sample of the present study. Unlike police station officers who mostly work from 9 A.M. to 6 P.M., night

shifts are a norm rather than an exception for Jigoodae officers, whose mandate is to protect and serve citizens 24/7 within their geographical jurisdictions. Frequent overnight duties not only take a toll on officers' health, but also sap the male officers' energy to take care of their wives and children at home. Monthly schedules for night shifts can often be altered abruptly to accommodate Jigoodaes' managerial and emergency needs. Unique to the Korean context, labor protests and citizen demonstrations were common as of the current data collection. The personnel-strapped Korean police frequently mobilized off-duty Jigoodae officers in occasions of protests and demonstrations. Forfeiting much-needed rest and time for family is a frequent occurrence for Korean frontline officers.

In addition to the main effects of work-family conflicts, the structural equation modeling demonstrated that a larger portion of work-family conflict's effects on physical symptoms was mediated by destructive coping. Similar to much police stress research focusing largely on moderating relations, had we not delved into the mediational hypothesis, we would have probably been left with uninformed of the association. In the Korean context, the current finding typically befits the following scenario: Male officers' demanding work schedules dotted with frequent night shifts spill over to family life, often leading to spousal discord and conflicts. In response to familial stress, the male officer ends up seeking behavioral outlets in the form of smoking and drinking associating with male friends. In Korea, smoking is still not looked down upon and TV dramas and movies commonly feature smoking as an acceptable way of relieving emotional stress and anxiety. In 2000, about 70% of adult male Koreans were smokers, while the figure has fallen to about 50% by 2007. The rate is the highest among OECD countries and smoking constitutes the leading cause of death in the country (Khang, Yun, Cho, & Jung-Choi, 2009). On an item asking respondents' smoking habits in the questionnaire of the current study, 50.1% reported that that they tend to smoke more in response to perceived stress.

In addition, South Korea is an “alcohol encouraging” society, where alcohol consumption is regarded as essential in many business and social gatherings. Alcohol is considered not only as a necessary means to promote friendships and camaraderie at workplaces, it is also viewed as an acceptable coping mechanism for stressful life events (Kim & Kim, 2008). In the current questionnaire, a separate item queried whether officers have experienced a “blackout” due to heavy drinking during the past one year. A surprising 19.3% ($n = 110$) reported affirmatively. High rates of smoking and drinking among Korean police officers are probably a major source of adverse physical symptoms they experience. The fact that victimization exerted main effects on somatization also deserves a mention. Since victimization of officers by citizens is a unique phenomenon to the Korean police, it has rarely been investigated as a potential stressor in the western context (see Manzoni & Eisner, 2006 for an exception). In this regard, the current study demonstrates the salience of culture-specific conceptualization of police stressors and their effects in comparative studies. In substantive terms, it is natural that Korean officers—as state-sanctioned authority figures—perceive citizens’ verbal and physical assaults stressful. Currently, measures are taken in South Korea to address the problem in the form of the war on drunkards and a projected hiring of twenty thousand more police officers. Assessing what implications such measures will have on police stressors and their effects can be an interesting empirical research agenda.

Contrary to western studies, none of the coping strategies revealed moderating effects. This finding is congruent with Morash et al.’s (2008), which similarly did not find moderating effects among a sample of rural Korean officers. They explained the null finding by drawing on the potentially dominating power of Confucianism-based collectivistic culture. In the present study, destructive, not constructive, coping had main effects. Borrowing Morash et al.’s (2008) interpretation, we surmise that excessive alcohol consumption with

peers, an established avenue to promote collectivistic harmony, partially explains the association between destructive coping and somatization. In Korea, if individuals drink for the purpose of business or workplace morale, they are simply considered social drinkers even if they suffer recurrent physical complications. Mild to moderate alcohol dependence is considered a personal habit, not a disorder deserving of medical attention, thereby demonstrating a higher rate of alcohol consumption and dependence than other countries (Namkoong et al., 2003). Genetically speaking, the Korean population exhibits a higher frequency of variant aldehyde dehydrogenase allele (ALDH2*2), which explains the frequent red flush (aka sake blush or Asian flush) and otherwise aversive physiological sensation after alcohol intake among a portion of East Asians (Helzer et al., 1990). Thus, heavy alcohol consumption and accompanying adverse health outcomes appear to be determined socio-culturally rather than biologically. Thus, in terms of policy implications, the Korean police need to strike a balance between health concerns and culturally ingrained practices of alcohol consumption. Police managers and supervisors are recommended to arrange constructive avenues to boost workplace morale and camaraderie, rather than drinking parities. In light of the substantial effects of work-family conflicts in generating somatization symptoms, police stress management policies should also take the family into account.

The purpose of this study was to test a cross-sectional model of how police stressors influence stress-related somatization symptoms of South Korean frontline officers. Of course, a cross-sectional model cannot guarantee causality. Yet, the structural equation modeling approach in this study showed an acceptable fit between the model and the data, which at least offers justification for gathering and testing longitudinal data. Also this study contributes to the literature by studying a unique sample of Korean officers who are stationed at street-level substations, embodying community policing through direct 24/7 interaction with citizens. Although the sample was selected from one large metropolitan city, we have no

particular reason that the current findings will not be applicable to other large cities in Korea. Yet, whether the findings will bear on rural officers is an empirical matter.

A notable limitation of the current study, which is common to other police stress research, is self-reports of both stressors and the outcome measure. This can lead to conceptual overlap between independent and dependent measures due to shared response bias. Also, it is possible that some officers may have exaggerated or feigned stressors and stress symptoms for certain political purposes (see Brown & Campbell, 1994; Golembiewski & Kim, 1991). To help reduce this bias, future police stress research is encouraged to use a triangulation strategy, where researchers augment self-report measures with objective indicators such as heart rates, blood pressure, and other physiological responses.

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