

## ■ Review article

## Self-care status of veterans with combat-related post traumatic stress disorder: A review article

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### Abstract

**Background and Purpose:** Post-traumatic stress disorder (PTSD) is identified as the risk factor for functional difficulties in most of the survivors. The aim of this study was to investigate the current evidence-based literature on the area of self-care and ADL status in the veterans with combat-related PTSD.

**Methods:** This review was conducted on the studies published within 2005-2015. The search was performed using such databases as SID, Iran Medex, Magiran, Science Direct, ProQuest, and PubMed. The searches were initially carried out using single keywords, and then continued with using OR/AND for combining words such as “self-care activity, instrumental activities of daily living, physical functioning, post- traumatic stress disorder in war veterans, etc”. Finally, a total of 783 papers were retrieved, out of which only 15 publications were considered relevant to the subject under discussion and investigated in-depth.

**Results:** According to the findings of the reviewed articles, there is a relationship between the self-care status and PTSD severity; as a result, greater PTSD symptoms are accompanied by poorer self-care practices and ADLs. Furthermore, in all the studies, the physical functioning (self-care or ADLs) was lower in the PTSD population in comparison to the non-PTSD population.

**Conclusion:** As the findings of the retrieved articles indicated, it can be conclude that the self-care practices and ADLs were poor among the veterans suffering from PTSD. Therefore, it is necessary that nurses develop a comprehensive care planning for this population to facilitate their achievement of independence in ADLs.

**Keywords:** Activity of daily living, Combat, Post- traumatic stress disorder, Self-care, Veteran

### Introduction

The combat veterans are highly exposed to various kinds of stressors and disturbing events due to their specific circumstances. Post- traumatic stress disorder (PTSD) is a mental disorder, which is highly prevalent in the returning soldiers, who have deployed to combat areas, due to experiencing intensive stress and psychosocial pressure during warfare (1).

The PTSD prevalence in the United States military veterans who served during the Vietnam war is reported to be 13-20% (2) within the 10 years or

more following the war. In addition, the prevalence rate of the PTSD among the American soldiers returning from the Middle East was estimated to range from 9-31%. Furthermore, based on the level of functional disability within the three months post-deployment, they fulfilled nearly 20-30% of the diagnostic criteria specified in the Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> edition, text revision) (3).

The PTSD has been identified as a pervasive

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disorder among the Iranian warfare victims (4). Approximately 14.9 % of the Iranian military personnel suffer from this disorder (5). According to the literature, the intensity of PTSD is associated with the length and degree of combat exposure (6-8), which is mostly accompanied by such disorders as depression, generalized anxiety disorder, and substance abuse (9). As the previous studies indicated, the PTSD is related to the impaired mental and physical health, enhanced drastic behavior, familial and marital adjustment disorders, as well as weak educational and professional performance (10-18).

A large number of the PTSD patients have impairments in their executive functions (19), which weaken their capability to keep interpersonal relationships, perform self-care behaviors, and fulfill their duties independently (20). In a population-based study, over 18,000 soldiers, who showed symptoms of the PTSD, were reported to have functional impairments at “very hard” or “extremely hard” levels (3). The PTSD independently enhances the posttraumatic functional disabilities and reduces the “quality of life” owing to the effects of trauma intensity and therapeutic circumstances (21, 22). The PTSD imposes a financial burden on the country by increasing the healthcare costs (23, 24). The PTSD is identified as the risk factor for the functional difficulties in the majority of the investigations (17, 25-27). One of the main domains of functioning is physical aspect including the self-care and activities of daily living (ADL) (e.g., hygiene, sleep, nutrition, sexual functioning, following the medical treatment, use of various services, and leisure activities) (28). Although, military studies have revealed contradictory findings about the prevalence and intensity level of the functional problems in the PTSD patients (29), no efforts have yet been made to review and investigate the literature on the self-care status of the war veterans suffering from the PTSD.

With this background in mind, this study aimed to investigate the current evidence-based literature on the area of self-care and ADL status in the veterans with combat-related PTSD. For accomplishing

this purpose, the systematic review design was employed. The systematic reviews enable the researchers to appraise and construe all the available studies related to a specific question (30).

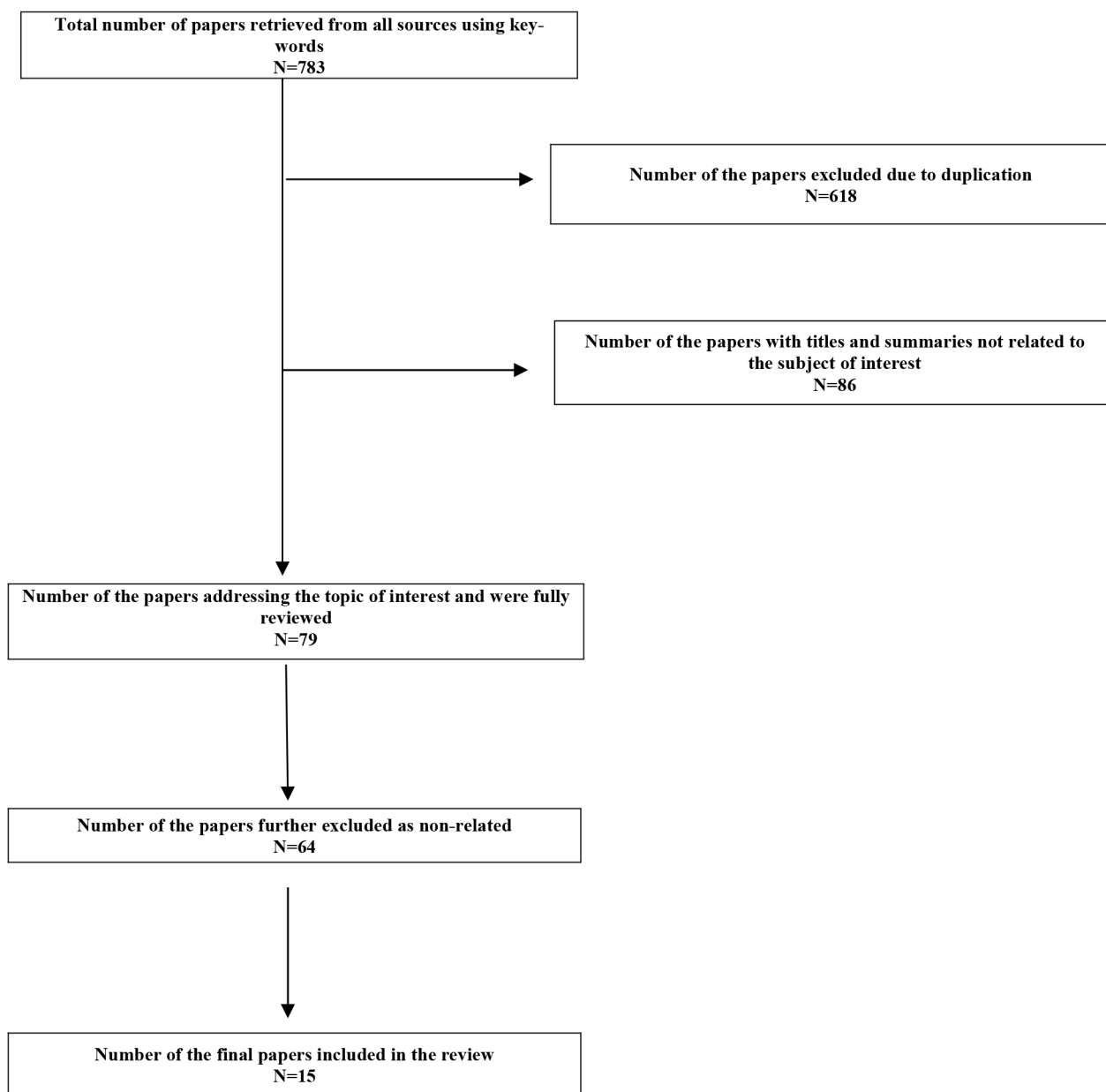
## Materials and Methods

This review was conducted on the studies published within 2005-2015. The search was performed using a guiding question, i.e., “How is the self-care and ADL status of veterans with combat-related PTSD?”. Subsequently, the search for process evaluation was performed to find the related evidence. After evaluating and choosing the articles, they were debriefed and incorporated into the study (30).

The data collection and searching process were carried out in the library of the nursing and midwifery school of Shahid Beheshti University of Medical Sciences. The search was performed using such databases as SID, Iran Medex, Magiran, Science Direct, ProQuest, and PubMed. Searches were initially carried out using single keywords, and then continued with using OR/AND, for combining words such as “self-care activity, instrumental activities of daily living, physical functioning, post-traumatic stress disorder in war veterans, combat-related post-traumatic stress disorder, military post-traumatic stress, etc.”

The original papers, published thesis, and reviews focusing on the war veterans, which were written in English and Persian and published during 2005-2015 were included in the study. On the other hand, the unclassified reports from gray literature, personal views, book chapters, historical articles, letters to editor, and nonscientific papers were excluded from this review. A total of 783 articles were retrieved and after several levels of exclusion, only 15 articles were finally determined as appropriate to be included in the study (Figure 1).

A quality screening tool was applied for selecting the relevant articles. In the final stage, in order to make sure of the familiarity with the data, the selected articles were studied completely by the corresponding author. Following these primary readings, the most important findings



**Figure 1.** Screening the literature for self-care status in war veterans with post- traumatic stress disorder

were extracted and summarized. These data were recorded in a standard format, and then organized in a narrative summary. In order to ensure about the data quality and readability, the records were later reviewed by three other members of the research team. The ethical principles, especially preserving the authors’ rights were respected during all stages of the study.

**Results**

After the data collection and analysis, the majority of the findings of the reviewed articles were found to fall into the domain of physical functioning. Table 1 illustrates a summary of the 15 publications addressing the self-care status or ADL in veterans with combat-related PTSD. According to the Table

**Table 1.** Summary of the included studies

Author/year	Participants	Design	Methods	Main findings
Armour et al. (32) (2016)	Veterans and Canadian forces (n=424), (mean age=45.06 yr)	A secondary analysis comparative study	The PTSD Checklist-Military version, latent profile analysis, questionnaire addressing physical functioning (36-item Short Form Health Survey), Patient Health Questionnaire-9	The veterans with the highest symptoms of PTSD and major depressive disorder comorbidity reported the worst physical functioning and role limitations due to physical health ( $P<0.05$ ).
Fang et al. (41) (2015)	War zone-deployed veterans (n=1530), (mean age=37.4 yr, age range=22-69 yr)	A prospective longitudinal cohort study	Self-administered questionnaires such as PTSD checklist, psychosocial functioning, and the Veterans RAND 12-item; Health Survey (VR-12), interviews, comprehensive electronic medical records	Functional impairments (i.e., self-care, physical functioning, and physical role) were remarkably higher among the male and female veterans with PTSD than those without PTSD ( $P<0.01$ ).
Hall et al. (42) (2014)	Old overweight military veterans with PTSD (n=67) and without PTSD (n=235), (mean age=62.9 yr)	A secondary analysis comparative study	The electronic medical record for any documentation of PTSD, BMI Scale, questionnaires addressing physical functioning (36-item Short Form Health Survey)	There was a negative relationship between physical functioning and function of daily activities among the older overweight veterans with PTSD ( $P<0.01$ ).
Asnaani et al. (37) (2014)	Personnel of the National Guard and Reserves quite recently coming back from deployment to Iraq (n=231) or Afghanistan (n=7), (mean age=34.1 yr)	A prospective longitudinal cohort study (between December 2006 and July 2009)	Clinician-administered PTSD scale, veterans' health survey (SF-36V), structured clinical interviews, Hoge combat experience (5 items), brief symptom inventory	On average, the sample reported mild impairment in the physical health domain of the SF-36 (mean score=85.1, SD=13.6). PTSD criterion B (re-experiencing) symptoms uniquely predicted lower physical functioning (B=0.66, SE=0.16, $t=4.24$ , $P<0.001$ ).
McAndrew et al. (40) (2013)	Soldiers (n=790), (age range=18-60 yr)	A prospective longitudinal observational cohort study	Data were collected at four steps: pre-deployment (step 1: 2005-2008), immediately after deployment (step 2: 2007-2009), three months after deployment (step 3: 2007-2010), and one year after deployment (step 4: 2008-2011), PTSD Checklist, questionnaire addressing the physical and mental health functioning (VR-36), and physiological measures	Soldiers in phase 2 (i.e., immediately after deployment) were reported PTSD symptoms (32.30±11.50) with poorer physical ( $P<0.05$ ) and mental functioning ( $P<0.001$ ).
Mandani & Fakhri. (43) (2013)	War veterans (n=70), (mean age= 46.52 yr)	A descriptive/ correlational study	Questionnaire addressing physical functioning (36-item Short Form Health Survey)	The combat veterans had lower scores in physical performance according to the (SF-36) survey.
Pittman et al. (35) (2012)	Combat veterans (n=220), (mean age=27yr, age range 19-52 yr)	A descriptive/ correlational study	Clinician-Administered PTSD Scale, standardized structured interview, Beck Depression Inventory II (BDI-II), 36-item Short-Form Health Survey	PTSD and depression significantly contributed to physical impairment in the veterans ( $P<0.02$ ), even after controlling for the overlapping symptoms.
Kline et al. (39) (2010)	National Guard deployed to Iraq (n=2543), (mean age=33.2 yr)	A retrospective study	PTSD Checklist, Patient Health Questionnaire, questionnaire addressing physical functioning (36-item Short Form Health Survey)	Formerly deployed soldiers screened positive for PTSD three times more than those with no former deployments (AOR=3.69; 95% confidence interval [CI]=2.59,5.24). More than over 90% obtained low scores on physical performance (AOR=1.94; 95% CI=1.51, 2.48).
Maguen et al. (44) (2009)	Vietnam veterans (n=1200), (mean age=41.26)	A retrospective study	Interviews, Mississippi Combat-Related PTSD Scale, Minnesota Multiphasic Personality Inventory-2 PTSD Keane Scale, Peritraumatic Dissociative Experiences Questionnaire, readjustment index for assessing multiple domains of functioning	The experience of killing someone was associated with PTSD symptoms, functional disability, and violent behaviors. The veterans who reported injuring or killing the enemy (e.g., combatants, prisoners, women, children, and elderlies) had higher functional impairment, compared to those without such experiences ( $P<0.05$ ).
Brooks et al. (45) (2008)	Veterans of Vietnam war-era (n=7914), (n=6141) with < 60 yr of age and ( n=1766) with > 60 yr of age)	A secondary analysis comparative study	Questionnaire of mental health well-being, the dummy coded exposure variable, independent variable (age, race, ADLs, etc.)	Younger veterans were more likely to report impairment in ADLs ( $P<0.0001$ ) and poorer health status, compared to the older ones.

Continuuous of Table 1.

Richardson et al.(36) (2010)	World war II and Korean war veterans (n=120) (Mean age=72.32 yr)	A retrospective study	Clinician-Administered PTSD Scale, Hamilton depression rating scale, 36-item Short-Form Health Survey	The scores of physical functioning among the old veterans with PTSD were not significantly different from the score of those without PTSD (mean=37.59, SD=7.58). On the contrary, the veterans with a depression diagnosis had significantly greater impairments in physical functioning ( $P<0.001$ ).
Jakupcak et al. (31) (2008)	Iran and Afghanistan war veterans (n=108)	A cross-sectional study	The PTSD checklist, questionnaire addressing chemical exposure, combat exposure, and physical health function	The PTSD symptom severity was correlated with lower physical and role functioning.
Vasterling et al. (33) (2007)	U.S. army soldiers (n=800),	A prospective longitudinal cohort study	The PTSD checklist, questionnaire addressing health risk behavior and health symptoms, Short-Form Health Survey (SF-12)	Among the soldiers receiving no treatment, there was small but considerable relationship between the PTSD severity and physical functioning before and after deployment.
Erbes et al. (34) (2007)	Returning veterans from Iraq (n=521)	A cross-sectional study	A 17-item questionnaire assessing symptoms of PTSD, Beck Depression Inventory (BDI), Alcohol Use Disorders Identification Test, Short-Form Health Survey (SF-36)	The PTSD symptoms were significantly associated with alcohol use levels ( $r=0.32$ , $P<0.001$ ), and depressive symptoms ( $r=0.61$ , $P<0.001$ ). The veterans with PTSD had worse role functioning due to physical problems than those without PTSD ( $P<0.05$ ).
Grubaugh et al. (38) (2005)	Veterans (n=669), (Mean age=61.42)	A cross-sectional study	Clinician-Administered PTSD Scale for the assignment of PTSD or Subthreshold-PTSD, structured interviews, Short-Form Health Survey (SF-36)	The three groups were compared and the veterans in the no-PTSD group reported better physical performance than those in the PTSD and the subthreshold-PTSD groups

1, more than half of the studies (%73.3) were carried out in the United States, which were related to Iraq, Afghanistan, and Vietnam war veterans. The rest of these articles were conducted in Canada (13.3%), Iran (6.6%), and the UK (6.6%). The participants of the studies investigating the Iraq and Afghanistan war veterans (mean age<40 years) were younger, compared to those in the Vietnam war. These studies employed different research deigns (e.g., secondary analysis comparative study, prospective study, retrospective longitudinal cohort study, and descriptive, cross-sectional or correlational study).

The reviewed articles disclose the variety of measurements that happen subset of the term self-care, physical function or functioning of daily activities and physical role. Some of these studies used qualitative research methods such as structured interviews. However, the quantitative methods were employed in all the studies, including questionnaires addressing PTSD, the 36-item Short-Form Health Survey (SF-36), and the Veterans

RAND 12-item. The SF-3 has different versions and is mostly considered as the measurement of "health-related quality of life." The physical and mental components of this scale contain indices of physical and mental health symptoms as well as functional measurements (17).

The majority of articles compared the self-care status and physical functioning across groups (in those who suffered from the PTSD, and those who did not have such disorder). Three studies investigated the relationship between the PTSD symptom severity and physical functioning (31-33). Furthermore, four studies evaluated the association between PTSD with depression comorbidity and physical functioning (32, 34-36). One study examined how the PTSD symptom clusters affect the physical functioning (37).

Additionally, one study compared the self-care status and physical functioning across groups with PTSD, subthreshold-PTSD, and no PTSD (38). Three studies investigated the impact of both pre-

and post-deployments on the PTSD symptoms and physical functioning among the veterans (33, 39, 40). One study examined the relationship between the functional status (i.e., self-care, physical functioning, physical role) and the PTSD among the male and female veterans (41).

## Discussion

This review focused on the self-care status and ADLs in the veterans with combat-related PTSD. According to the findings of the reviewed articles, the self-care status and ADLs were poor among the veterans who suffered from the PTSD. In all of the studies, the physical functioning (i.e., self-care or ADLs) were lower in the PTSD population in comparison to their non-PTSD counterpart (31-45). Our study is congruent with those demonstrating that the PTSD significantly enhances multiple domains of functional impairment (29, 46, 47).

As reported in the reviewed articles, there is a relationship between the physical functioning and PTSD severity, i.e., those with higher symptoms of PTSD had poorer physical functioning and ADLs. This finding is supported by the studies revealing the association between the posttraumatic distress severity (i.e., higher total PTSD symptom scores) and low physical functioning among the veteran samples (47-49).

In addition, our review showed that the PTSD and comorbid depression significantly contribute to the physical impairment. In line with the results of the retrieved articles, Grieger et al. (2006) and Lapierre et al. (2007) demonstrated that the PTSD and depression are very comorbid in returning soldiers from Iraq and Afghanistan (50, 51). Likewise, Gudmundsdottir et al. (2004) indicated that the comorbid depression affects the functioning dimensions (52). The overlap in the symptoms of two disorders further complicates the PTSD effects (17).

Considering the results of the retrieved articles about the relationship between PTSD symptoms and physical functioning, it was shown that the PTSD criterion B (i.e., re-experiencing) symptoms uniquely decreased the physical functioning. In a similar

study, Taylor et al. (2006) revealed that decreased re-experiencing improved the social, familial, and occupational performance in the PTSD victims (53).

In our review, the veterans without PTSD enjoyed better physical functioning than those with PTSD and the subthreshold or partial PTSD. The findings of the retrieved articles are compatible with evidence, indicating that the impairment is not limited to those who present the PTSD diagnostic criteria (54-57). In the studies, which investigated the differences between the PTSD and partial PTSD, Breslau et al. (2004), Schützwohl and Maercker (1999), as well as Stein et al. (1997) reported that the odd ratio of impairment was much higher in the group with the highest PTSD scores (54, 57, 58). Therefore, it increases our awareness by indicating a deficiency of threshold between the PTSD degree and impairment, so that even a light enhancement in the PTSD degree had an effect of consequences (59).

Regarding the impacts of the pre and post-deployments on the PTSD symptoms and physical functioning, the formerly deployed soldiers screened positive for the PTSD three times more than those with no former deployments and More than 90% of them obtained low scores on physical performance. Additionally, the veterans were reported to have the PTSD symptoms with poorer physical functioning immediately after deployment. Likewise, according to the reports of the Office of the U.S. Army Surgeon General, the weakness in the role playing is more probable in the veterans with several deployments than others (16.6% vs. 9.7%), and several deployments have harmful effects on duty implementation (60).

Vasterling, et al (2010) reported that the deployment-related stressors increase the PTSD symptoms; accordingly, the deployed veterans showed higher PTSD symptom severity from pre- to post-deployments, compared to their non-deployed counterparts (61). The findings of the reviewed articles revealed that the PTSD among the soldiers returning from combat operations in Iraq and Afghanistan was strongly associated with significant physical functioning impairments (in self-care, work, and education) with similar

associations by gender.

In addition, In the general population are well recorded gender differences in the outbreak and risk of PTSD (62). In contrast with what was reported in the retrieved articles, some of the military studies proposed that returning servicewomen may have a gently higher risk of post-deployment PTSD, compared to the men (63).

The strengths of this study are the employment of the articles, which embodied participants with diverse demographic characteristics (e.g., age, gender, etc.), interview- and questionnaire-based assessments, as well as early and late evaluations (i.e., average of six months and many years, respectively) after deployment. Moreover, the articles covered in this study incorporated such assessments examining the relationships of diagnosis, severity, comorbidity, subthreshold, and symptom clusters of the PTSD with physical functioning. On the other hand, the reported results of this review are limited to the military personnel and veterans in war zone deployment. Regarding this, further studies are recommended to investigate the population of refugees and nonveteran victims in war zones.

Totally, in reply to the main question of this study, our review indicated that the veterans suffering from the PTSD have inappropriate self-care status and ADLs, and the findings in both veterans with and without PTSD are comparable in this regard.

## Conclusion

As indicated in this review, it can be conclude that the self-care status and ADLs were poor among the veterans afflicted with PTSD. These results have suggestions for both PTSD researchers and health care providers. Accordingly, the first line of care providers should evaluate the self-care status in the veterans with PTSD in order to develop a comprehensive care plan for this population. Consequently, it is necessary that nurses and healthcare leaders become more actively involved to ensure that the veterans have the resources and support they need to achieve

independence in ADLs.

## Conflicts of interest

In this study, the authors declare no conflicts of interest.

## Authors' contributions

R. Khalili was the main investigator and accomplished the study design, data collection, and writing of the first draft. Furthermore, M. Sirati Nir contributed with the supervision and research guidance. Additionally, M. Fallahi, H. Mahmoodi, and A. Ebadi equally assisted in reviewing, critical revision, and editing of the manuscript.

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