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Empirical Articles

The Construction and Validation of a New Hepatitis C Virus Social Stigma in the Workplace Scale

Desenvolvimento e validação de uma escala de estigma social no local de trabalho associado ao novo vírus de Hepatite C

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Abstract

Aim: The purpose of this study was to develop a new scale to measure the social stigma of hepatitis C virus (HCV) in the workplace using a refined version of Link and colleagues' (Link & Phelan, 2001, https://doi.org/10.1146/annurev.soc.27.1.363; Link, Yang, Phelan, & Collins, 2004, https://doi.org/10.1093/oxfordjournals.schbul.a007098) definition of social stigma.
Methods: The new scale was developed over a multistage process that was guided by existing scales and focus groups. Two studies were conducted to validate the scale. The first, collected data from 224 employees and used exploratory factor analysis to remove unsatisfactory items. The second study collected data from 254 employees and used confirmatory factor analysis.
Results: Results indicated that the new 32 item scale had acceptable reliability and validity. These results support the conceptualization of stigma as a latent construct that abstracts stereotyping, prejudice and intention to discriminate.
Conclusion: Findings elucidate that HCV stigma can be operationalized as a general factor behind stereotyping, prejudice and intentions to discriminate in the workplace. This is an important conclusion because it may bring parsimony and coherence to a complex and dispersed literature. Additionally, the new scale may be used to study HCV stigma in the workplace.

Keywords: stigma, stereotyping, prejudice, discrimination, Hepatitis C Virus

Resumo

Objetivo: O objetivo do presente estudo foi desenvolver uma nova escala para medir o estigma social associado ao Vírus da Hepatite C (VHC) no local de trabalho utilizando uma versão melhorada da definição de estigma social de Link e colegas (Link & Phelan, 2001, https://doi.org/10.1146/annurev.soc.27.1.363; Link, Yang, Phelan, & Collins, 2004, https://doi.org/10.1093/oxfordjournals.schbul.a007098).
Método: A nova escala foi desenvolvida através de um processo multifásico que foi guiado por escalas existentes e grupos focais. Dois estudos foram realizados para validar a escala. No primeiro, recolheram-se dados de 224 funcionários e recorreu-se à análise exploratória fatorial para remover itens insatisfatórios. No segundo estudo recolheram-se 254 funcionários e recorreu-se à análise fatorial confirmatória.
Resultados: Os resultados indicaram que os novos 32 itens apresentam fiabilidade e validade aceitáveis. Estes resultados suportam a conceptualização do estigma enquanto um construto latente que transforma a estereotipação, o preconceito e a intenção para discriminar em conceitos abstratos.
Conclusão: Os resultados indicam que o estigma em relação ao VHC pode ser operacionalizado como um fator geral inerente à estereotipação, ao preconceito e à intenção para discriminar no local de trabalho. Esta conclusão é relevante no sentido em que pode trazer parcimónia e coerência a uma literatura complexa e dispersa. Adicionalmente, a nova escala poder ser usada para estudar o estigma associado ao VHC no local de trabalho.

Palavras-Chave: estigma, estereótipo, preconceito, discriminação, Vírus da Hepatite C

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Since its introduction by Erving Goffman (1963), social stigma has been the focus of a large number of studies in psychology and sociology. According to Goffman (1963), stigma emerges when certain individuals possess a "mark" or attribute that is devalued by the social majority. Since Goffman's work, a few definitions of stigma have been offered. For example, Jones, Scott, and Markus (1984) defined stigma as a social process that links a *mark* to a negative stereotype. Crocker and Major (1989) offered a similar definition by suggesting that stigma is an individual attribute that is discrediting and devalued in a specific social context. These early definitions conceptualize stigma as a form of negative stereotyping. Corrigan et al., (2003) expanded this conceptualization by suggesting that stigma is composed of stereotyping, prejudice and discrimination. They however did not test empirically if stigma is a multidimensional construct. Major and O'Brien (2005) have noted that researchers often treat each of stereotyping, prejudice and discrimination as interchangeable constructs with stigma.

An important communicable disease that can be a source of stigmatization is hepatitis C virus (HCV). According to the World Health Organization (WHO), HCV is a "viral time bomb" as 3% of the world's population is infected with the disease (Momenghalibaf, 2013). Recent studies indicated that people infected with HCV often face stigma in many domains of life including the workplace (Noor, Bashir, & Earnshaw, 2016; Saad & Mohamed, 2016). In spite of its importance, little is known about the causes, processes or consequences of HCV stigma, particularly in the workplace. Understanding these issues requires a reliable and valid measurement instrument. To date, no published study has attempted to construct and validate an instrument specifically designed to measure the social stigma of HCV in the workplace.

A prerequisite of scale development is a clear definition of the construct. Link and Phelan defined stigma as "when elements of labelling, stereotyping, separation, status loss, and discrimination co-occur in a power situation that allows the components of stigma to unfold" (Link & Phelan, 2001, p. 367). Although, this multidimensional definition is widely accepted in the stigma literature, it has two short comings. First, this expanded view of stigma is not parsimonious. Some of the components of the model can be included under other components, thus creating a more parsimonious model that is easier to operationalize. Second, Link and Phelan (2001) did not clearly specify the relationship between stigma and its components. Wong, Law, and Huang (2008, p. 745) call underspecified multifaceted constructs "pseudo-multidimensional constructs". Such constructs are usually operationalized by researchers inconsistently and as a result do not lead to the accumulation of knowledge. The continuation of this confusion over the conceptualization of stigma has slowed the process of theory building and testing (Pescosolido & Martin, 2015). Thus, clarifying the definition of stigma and how it should be operationalized is useful and necessary.

The purpose of this study was to construct and validate a scale to measure the social stigma of HCV in the workplace using a more parsimonious version of Link and Phelan's (2001) definition of stigma. This scale operationalized stigma as a multidimensional latent construct that is composed of stereotypes, prejudice, and intention to discriminate. Intention to discriminate is used in this study in place of discrimination because it is difficult to measure actual discrimination. According to Ajzen (1991), intentions are strong predictors of behavior.

The samples of the study were drawn from Egypt, which has the world's highest rate of HCV infection (Helmy, 2011).

Conceptualization of Stigma

The first component of stigma in Link and Phelan's (2001) definition is labelling, which occurs when a specific characteristic is named or labelled making it socially salient. Once a label such as *HCV positive* is created, people are then categorized according to these labels and treated accordingly (Dovidio, Hewstone, Glick, & Esses, 2010; Link & Phelan, 2001). The second component of stigmatization according to Link and Phelan (2001) is stereotyping, which is the attribution of group characteristics to an individual only because of that individual's membership in the group (Dovidio et al., 2010). The third component of the model is separating the "us' from "them". Separation allows for "smooth" stereotyping and subsequent discrimination against the "out-group" members (Janis, 1972; Tajfel, 1981). The fourth component of stigma is status loss and discrimination. Discriminatory acts can be explicit as in refusing to hire people with HCV or can be implicit as in *accidently* disclosing an employee's HCV condition to his/her co-workers and supervisor. This study views status loss as subtle form of discrimination. The fifth and last component of Link and Phelan's (2001) model is the dependence of stigma on economic, political and social power. Although any group can form stereotypes of other groups, only powerful groups have the means to devalue and discriminate against weaker groups.

Link, Yang, Phelan, and Collins (2004) modified Link and Phelan's model to include emotions as an additional component of stigma. They suggested that stereotyping and separation may generate emotions such as anger, fear and pity in both the stigmatized and the oppressor.

Reformulating the Components of Stigma

This study suggested that the definition of Link and Phelan (2001) and Link et al. (2004) can be made more parsimonious by making three changes. The first change is to remove labelling and separation from the model as they are already included in stereotyping. Labelling and separation are processes that occur within stereotyping. According to Schneider (2004), stereotyping cannot take place before an individual is placed in a social category for which there is a stereotype. As such, categorization and labelling are similar; when we label or categorize individuals we assign them to specific groups. Separating the "us" from "them" also results from the categorization (Fiske & Russell, 2010).

The second suggested change to Link and his colleagues' conceptualization of stigma is to replace emotions with prejudice. Schneider (2004) defined prejudice as an affective reaction towards people as a result of their group category. Negative emotions such as hate, anger, and disgust may be directed towards the stigmatized groups. As such, prejudice does include (negative) emotions.

The third suggested change is to remove power as a component of stigma. According to Link and Phelan (2001) power is necessary for the enforcement of stigma. Research has shown that social power increases prejudice (Guinote, Willis, & Martellotta, 2010) and stereotyping and discrimination (Guinote & Phillips, 2010). In these studies, power is as an antecedent to stereotyping and discrimination, however, power may also moderate the relationship between stereotyping and discrimination. Irrespective of the conceptualization of power as an antecedent or a moderator, it should not be part of the definition of stigma. A good construct definition should not be tautological (Suddaby, 2010). Hence, it is better if power is removed from the definition of stigma.

As for the relationship between stigma and its components, Law, Wong, and Mobley (1998) state that a latent construct is a higher abstraction of its dimensions. As such, stigma is a higher abstraction of stereotyping, prejudice and discrimination. In other words, stigma is a general factor that summarizes these three distinct but related dimensions. This should not imply that stigma is caused by stereotyping, prejudice and discrimination; stigma is all of them combined. Based on the above, this study hypothesized that a model where stigma is conceptualized as a multidimensional latent construct that is composed of stereotyping, prejudice and discrimination will fit the data better than a model where stereotyping, prejudice and discrimination are conceptualized as independent factors.

Study 1: Scale Construction and Exploratory Factor Analysis

Methods

Participants

Data was collected from a sample of 224 employees working in a public university in Cairo using convenience sampling. The participants' were 43.8% male and 56.2% female, with age ranging from 21 to 68 years (M = 34.33 and SD = 12.91).

Measures

HCV Social stigma in the workplace was measured using a new scale composed of 40 items. This scale is composed of eight sub-dimensions, each measured using 5 items. All items were measured on a seven point Likert scale that ranged from *totally agree* to *totally disagree*. The total scale score was calculated by adding the score of all items, with higher scores indicating higher stigmatization.

Procedures

The scale development process was started with a comprehensive review of the published scales that measured HIV/AIDS or HCV stigma from the perspective of the uninfected individual. Four separate focus groups were also conducted to solicit the participants' views on people with HCV. Each group had seven to ten uninfected employees that were recruited from a call centre. Their age ranged from 21 to 47 years (M = 31.2, SD = 13.5) with males representing 55% of the participants.

After the scale was fully formed, a pilot test with 30 employees without HCV was performed to ensure that the scale did not contain vague or confusing items. The participants were recruited from a public university. After receiving the approval of the university's administration, one of the authors approached potential participants in their offices to ask them to participate in a study on HCV. Participants were assured confidentiality. Those

agreeing to participate were given the paper and pencil scale to complete and the equivalent of $5 dollars in Egyptian Pounds as a reward.

Results

Scale Construction

The transcripts of the focus group meetings were analysed by two of the authors using the methods of grounded theory (Charmaz, 2006), which resulted in a set of themes that abstracted the views of the participants. These themes were then linked to stereotyping, prejudice and intention to discriminate.

Table 1

Scale Item Loadings on the Subdimensions

Items		C	R	SR	WP	F	D	SD	DR
1.	HCV can spread from one person to another	.75							
13.	You can catch HCV from someone else	.81							
27.	People believe that HCV is contagious	.82							
30.	You cannot get HCV from others (R)	.53							
14.	People with HCV are responsible for their illness		.53						
15.	The cause of HCV is wrong behavior		.60						
26.	People with HCV cannot be blamed for illness (R)		.78						
40.	People with HCV could have avoided the illness		.83						
5.	People stay away from those with HCV			.61					
6.	People with HCV are welcomed by others (R)			.56					
17.	People object to mixing with those with HCV			.58					
24.	People with HCV are isolated by society			.81					
7.	People with HCV are lazy				.69				
9.	People with HCV have low work productivity				.66				
23.	People with HCV are absent from work a lot				.55				
34.	People with HCV can perform their jobs well (R)				.49				
35.	I feel anxious when I am next to a person with HCV					.73			
44.	I fear interacting with someone with HCV					.89			
45.	I'm not afraid of working with those with HCV (R)					.57			
50.	I panic when I work with someone with HCV					.77			
37.	People with HCV are clean (R)						.46		
38.	I feel repulsed by people with HCV						.61		
46.	I feel sick when working with someone with HCV						.51		
47.	People with HCV disgust me						.75		
57.	I will avoid working with people with HCV							.59	
58.	I will quit before working with people with HCV							.61	
62.	I socialize with people with HCV (R)							.87	
69.	I will not share an office with someone with HCV							.87	
66.	I will not give people with HCV important work								.43
72.	I will not promote employees with HCV								.64
73.	I do not give my work tools to someone with HCV								.56
74.	I will give employees with HCV what they need (R)								.82
Eigenvalue		2.19	1.96	1.71	1.47	2.26	1.42	2.27	1.59
% of explained variance		6.84	6.12	5.34	4.95	7.06	4.43	7.09	4.96

Note. C = Contagion; R = Responsibility; SR = Social Relations; WP = Work Performance; F = Fear; D = Disgust; SD = Social Distance; DR = Denial of Resources; (R) = Reversed item.

Based on the themes emerging from the focus groups, stereotyping was formed of four sub-dimensions; 1) contagiousness, which refers to the degree to which the HCV is believed to be transmissible; 2) responsibility, which measures the degree to which the HCV-employee is believed to be responsible for the infection; 3) social relationships, measures the beliefs about how non-infected employees treat HCV-employees; and 4) work performance, measures the beliefs about the work outcomes of HCV-employees. Prejudice was formed from two sub-dimensions of emotions: fear and disgust. Finally, intention to discriminate was formed from two sub-dimensions; 1) social distance, which measures the oppressor's intention to isolate and separate the HCV-employee; and 2) denial of resources, which refers to the oppressor's intention to deny employment and job related resources to the infected employee.

After identifying the sub-dimensions of the scale, items fitting each sub-dimension were either selected from existing scales or generated. In total, 80% of the items were new items were written in or translated to Arabic.

Exploratory Factor Analysis (EFA)

Item performance was checked by examining item-total scale correlations, mean and variance. Corrected item-total scale correlations were statistically significant and ranged from .68 to .35. However, the means of five items were very low, so they were removed from the scale.

After completing the item analysis, EFA was used to understand the dimensionality of the latent variable measured. Using the eigenvalue greater than 1 rule and oblique rotation, eight factors were retained. A factor loading of .4 or higher was used as a cut-off for assigning an item to a factor. Based on this analysis, three items were removed from the scale, which finally contained 32 items. No cross-loadings were detected. Table 1 shows the retained items and factor loadings.

As Table 2 shows, Cronbach's alpha of the eight first-order factors and the three second-order factors ranged from .86 (Stereotype) to .76 (Work Performance). The table also shows significant positive correlations among factors.

Table 2

Descriptive Statistics, Correlation Coefficients, and Reliability

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. C[a]	23.21	2.35	.82										
2. R[a]	24.34	2.59	.48*	.79									
3. SR[a]	22.51	2.27	.66*	.56*	.80								
4. WP[a]	23.12	2.61	.58*	.52*	.56*	.76							
5. F[a]	23.42	2.37	.44*	.35*	.54*	.51*	.80						
6. D[a]	22.58	1.31	.43*	.50*	.51*	.52*	.62*	.81					
7. SD[a]	24.31	1.44	.41*	.36*	.46*	.39*	.64*	.42*	.78				
8. DR[a]	23.32	2.03	.51*	.38*	.55*	.41*	.47*	.47*	.45*	.78			
9. S[b]	96.56	14.85	.39*	.55*	.65*	.83*	.57*	.44*	.62*	.57*	.86		
10. P[b]	43.04	8.95	.42*	.35*	.57*	.64*	.83*	.53*	.69*	.65*	.73*	.84	
11. ID[b]	40.43	11.35	.62*	.57*	.61*	.63*	.61*	.56*	.91*	.87*	.67*	.76*	.82

Note. Alpha coefficients are on diagonal cells; C = Contagion; R = Responsibility; SR = Social Relations; WP = Work Performance; F = Fear; D = Disgust; SD = Social Distance; DR = Denial of Resources; S = Stereotype, P = Prejudice; ID = Intention to Discriminate.

[a]First-order factors; [b]second-order factors.

*p = .01.

Study 2: Confirmatory Factor Analysis (CFA)

Methods

Participants

In this study, data was collected from a new sample of 254 employees using the same design as in Study 1. The participants' were 71.7% male and 28.3% female, with age ranging from 21 to 71 years (*M* = 35; *SD* = 9.85).

Measures

In this study, the 32 item scale that resulted from Study 1 was used. To test the convergent validity of the scale, the Altemeyer's 20 item dogmatism (DOG) scale was added to the measurements, which measures the unjustified and unchangeable certainty in one's beliefs (Altemeyer, 2002). Indeed, some studies have reported positive relations between dogmatism, prejudice and discrimination (Whitley & Lee, 2000). In the current study, the Cronbach's alpha for this scale was .81. To measure the extent to which social desirability as a bias, affected the results, the Marlowe-Crowne short form, 8 items social desirability scale (Reynolds, 1982) was also used. The Cronbach's alpha for this scale was .78.

Procedures

Following the same procedures used in Study 1, participants completed the paper and pencil scale in their offices at the university. Participation was voluntary, anonymous and was rewarded with the equivalent of $5 in local currency.

Results

Reliability

To assess reliability, Cronbach's alpha was calculated for each of the dimensions and sub-dimensions of HCV stigma. As shown in Table 3, the alphas ranged from .84 (Stereotype) to .74 (Work Performance).

Table 3

Descriptive statistics, Correlation Coefficients, and Reliability

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
1. C[a]	22.46	3.96	.81										
2. R[a]	25.15	2.86	.50*	.77									
3. SR[a]	22.93	2.88	.65*	.55*	.78								
4. WP[a]	23.91	2.26	.59*	.54*	.57*	.74							
5. F[a]	23.98	3.08	.41*	.31*	.51*	.50*	.82						
6. D[a]	23.58	1.31	.44*	.48*	.50*	.51*	.63*	.79					
7. SD[a]	22.58	2.67	.39*	.35*	.44*	.36*	.60*	.47*	.77				
8. DR[a]	21.58	3.43	.45*	.39*	.55*	.43*	.46*	.45*	.43*	.76			
9. S[b]	95.74	15.12	.43*	.57*	.68*	.81*	.59*	.47*	.65*	.58*	.84		
10. P[b]	42.88	9.15	.45*	.38*	.60*	.62*	.82*	.55*	.71*	.68*	.71*	.80	

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11
11. ID[b]	41.83	12.04	.64*	.61*	.63*	.64*	.61*	.58*	.88*	.89*	.65*	.74*	.81

Note. Alpha coefficients are on diagonal cells; C = Contagion; R = Responsibility; SR = Social Relations; WP = Work performance; F = Fear; D = Disgust; SD = Social Distance; DR = Denial of Resources; S = Stereotype; P = Prejudice; ID = Intention to Discriminate.
[a]First-order factors; [b]second-order factors.
*p = .01.

Construct Validity

CFA was used to test the hypothesis that stigma is a latent multidimensional construct composed of three dimensions, which in turn, are composed of eight sub-dimensions. The maximum likelihood estimation method using the AMOS (Version 16) software was used to carry out the analysis. CFA is used to assess the degree of fit between the construct's theoretical and empirical structures, which is measured through a number of statistical tests including Chi-squared/degrees of freedom (χ^2/df), goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). Hu and Bentler (1999) suggested cutoffs for χ^2/df below 3, GFI and CFI above .95, and below 0.06 for RMSEA. The testing of the hypothesis was done in two steps. First, the analysis started by assessing the fit of the items on their respective eight sub-dimensions. Second, two models were compared. Model 1 tested the hypothesis that stigma is a single factor, third order structure, and Model 2 tested stereotyping, prejudice, and intentions to discriminate as three independent factors, second order structure (without stigma).

The results shown in Table 4 indicate that most of the fit indices for each sub-dimension were acceptable. This means that the items of the scale fitted into their respective sub-dimensions. Figure 1, shows the hypothesized Model 1. Table 5, also shows the fit statistics of this model, which produced a χ^2/df = 1.45, p = .06, indicating that the null hypothesis of good fit is rejected. Additionally, the measures of goodness of fit (CFI = .98, GFI = .95, and RMSEA= .03) indicated very good fit. Model 2 produced a χ^2/df = 5.08, p > .02, indicating that the null hypothesis of good fit is accepted. Additionally, the measures of goodness of fit (GFI = .76, CFI = .72, and RMSEA= .15) indicated poor fit. Thus, Model 1 is better than Model 2. As such, the hypothesis that stigma is a latent multidimensional construct composed of three dimensions, which in turn, are composed of eight sub-dimensions was accepted.

Table 4

Fit Indices for Sub-dimensions

Variable	No. of Items	χ^2	*df*	χ^2/df	GFI	CFI	RMSEA	CI for RMSEA
Contagiousness	4	5.76	2	2.88	0.98	0.93	0.08	.07-.09
Responsibility	4	5.22	2	2.61	0.98	0.97	0.06	.04-.07
Social Relationships	4	4.50	2	2.25	0.98	0.99	0.04	.02-.05
Work Performance	4	2.86	2	2.43	0.98	0.99	0.03	.02-.04
Fear	4	3.42	2	1.71	0.99	0.99	0.01	.00-.01
Disgust	4	3.84	2	1.92	0.99	0.99	0.01	.00-.01
Social Distance	4	4.22	2	2.11	0.98	0.99	0.01	.00-.01
Denial of Resources	4	5.04	2	2.52	0.97	0.98	0.03	.02-.04

Note. N = 254.

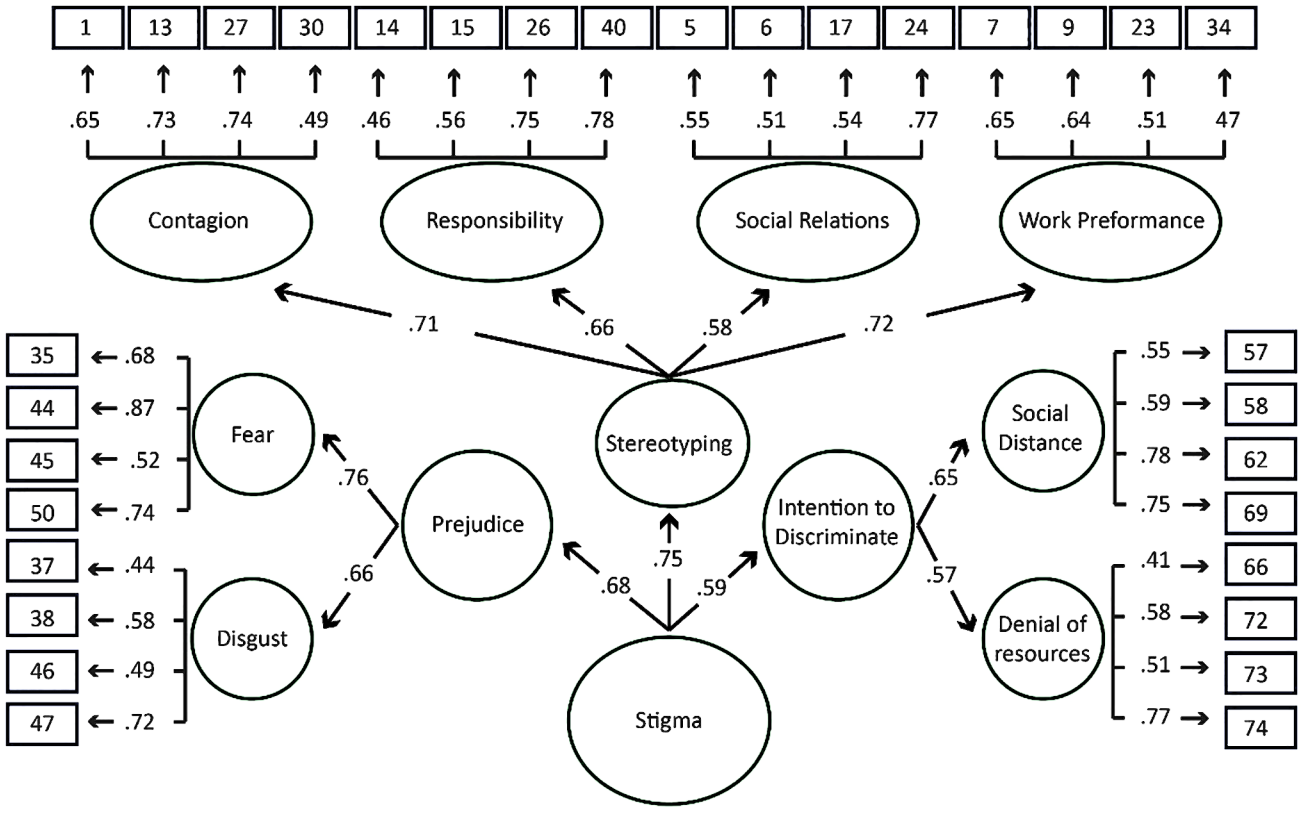

Figure 1. The hypothesized third order structure and standardized estimates

Table 5

Fit Indices for Different Models

Model No.	Model Description	χ^2	*df*	χ^2/df	GFI	CFI	RMSEA	CI for RMSEA
1	Third order structure	651.95	449	1.45	.95	.98	.03	.01-.05
2	Second order structure	1783.10	351	5.08	.76	.72	.15	.13-.16
3	Social desirability correlated with items	1306.40	456	2.86	.71	.76	.10	.08-.11
4	Social desirability correlated with first order factors	1163.10	378	3.07	.69	.74	.10	.09-.11

Note. $N = 254$

To test if social desirability affected the results, two additional models were tested following the procedures recommended by Podsakoff, MacKenzie, and Podsakoff, (2003). In Model 3, social desirability was loaded as a latent construct on the scale's items. In Model 4, social desirability was loaded as a latent construct on the dimensions of stigma. As shown in Table 5, these two models fit very poorly compared with Model 1.

Regarding the convergent validity of the new scale, results showed that dogmatism correlated significantly and positively with stigma (r =.16, $p = .05$), stereotyping (r =.15, $p = .01$), prejudice (r =.11, $p = .05$), and intention to discriminate (r =.16, $p = .01$).

General Discussion

Psychometric Properties of the New Scale

This study attempts to construct and validate a scale to measure the social stigma of HCV in the workplace. The results show that the internal consistency of the scale's dimensions are between .86 and .76 in the Study 1, and .84 and .74 in Study 2, indicating acceptable reliability levels. Additionally, the results show that the reliabilities did not change significantly between the studies, which increase confidence in the results. It is important to note that Work Performance produce the weakest reliability among all of the sub-dimensions, which may suggest a need to revise its items.

Concerning construct validity, the CFA indicates that stigma, as measured in this study, is a latent multidimensional construct that is composed of three dimensions; stereotyping, prejudice and intentions to discriminate. These dimensions, in turn, are composed of eight sub-dimensions. The analysis supports the conclusion that stigma is the general factor or the latent construct combining these dimensions. In other words, stereotyping, prejudice and discrimination are components of stigma, not parallel or interchangeable constructs with it. The existences of stigma as a general factor explains why there are high to moderate correlations between the dimensions and sub-dimensions. An issue relevant to validity is whether the results of the study are affected by social desirability bias. The CFA indicates that social desirability did not load on the scale's items or dimensions, suggesting that social desirability bias did not impact the results. With regards to convergent validity, the correlation between stigma and dogmatism is significant and in the correct direction, yet it is small. This provides partial evidence of the convergent validity of the new scale.

Stigma as a Multidimensional Construct

Conceptualizing stigma as a multidimensional construct has several advantages. First, this definition of stigma is more parsimonious than that offered by Link and Phelan (2001) and Link et al. (2004). In their model, stigma is composed of six factors, while in this study it is composed of only three. Operationalizing and interpreting the results of a three dimension construct is easier than for a more complex construct. Additionally, the three factor conceptualization does not contain any unnecessary contaminants, thus it is purer. The definition of stigma should not include its antecedents. As the literature reviewed suggests, power allows stigma to unfold. In other words, it is an antecedent or a contingency variable of stigma. Removing power provides a more valid definition. Removing power from the definition also does not undermine Link and Phelan's (2001) argument that it is an important variable. Nevertheless, power should be included in future studies as a covariable.

Second, the literature on stigma, stereotyping, prejudice and discrimination seem to be disconnected. Although many scholars view these constructs as related (Schneider, 2004), the literature is dispersed. Phelan, Link, and Dovidio (2008, p. 358) cite the sociologist R. K. Merton when writing that “sometimes entirely separate literatures develop around essentially identical constructs”. If indeed these constructs are related as this study is suggesting, then scholars working in these areas should borrow from and build on each other’s work.

Limitations and Future Research Directions

This study has four limitations. First, the samples have disproportionate gender representation; the sample of Study 1 has 43.8% males and 56.2% females, while Study 2 has 71.7% males and 28.3% females. This anom-

aly may bias the results. However, since the correlation matrix in both studies show similar results, the gender disparity does not appear to significantly affect the results of the overall study. Nevertheless, the non-probability design of the samples limits the generalizability of the results to other contexts. This means that what is considered stigmatizing depends significantly on the place, time and type of interaction. For example, because the participants are employees working in a university, their responses may be different than what less educated workers would give. The level of education may play a role in determining responses to HCV. A second limitation of this study is the sample size. Because the model has several dimensions and sub-dimensions, future research should use larger samples. A third limitation is that some of the participants complained that the scale was too long. Future studies may reduce the number of items in the scale. Finally, this study did not examine important psychometric properties of the new scale such as test-retest reliability, discriminant, known-groups, responsiveness to change, and criterion validity. Additionally, better evidence of convergent validity is needed.

Conclusion

This study suggests that stigma should be defined as a broad latent multidimensional construct with three dimensions; stereotyping, prejudice and intention to discriminate. Based on this conceptualization, a new scale to measure HCV stigma in the workplace was developed. To validate this scale, two studies were conducted. The first study collected data from 224 Egyptian employees working in a public university in Cairo. EFA was used to remove poor items and identify the factor structure of stigma. A second study collected data from 254 employees and used CFA analysis. This study showed that a one factor, third order model fitted the data better than a three factor, second order model. This supports the view of stigma as a latent multidimensional construct.

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Competing Interests

The authors have declared that no competing interests exist.

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