



## A cross-cultural study to explore the differential impacts of online social capital on psychosocial outcomes



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### ABSTRACT

The nature of the relationship between online social capital and well-being may be impacted by a number of important factors, such as identity motives and self-presentational strategies. Additionally, there are likely to be cross-cultural variations in this respect, given that social internet use can vary considerably cross-nationally. Participants ( $N = 682$ ) from the UK and Saudi Arabia completed questionnaires which took cross-sectional measures of online social capital (bonding and bridging), identity motives, self-presentational strategies and aspects of well-being. Findings revealed some cross-cultural variations in the extent to which online social capital operated on identity-related factors and well-being. Namely, online bridging was distinctly more prominent for Saudi users compared to UK users, in its relationships with all identity motives and some cascading effects on aspects of well-being. For UK users, online bonding appeared to hold significant relationships with the identity motives of efficacy and belonging, and these mediated the link onto loneliness and life satisfaction. Overall, this suggests that online social capital varies cross-culturally, specifically in respect of how different types of online social resources impact upon well-being via varying presentational efforts.

Connection to the Internet can foster a range of opportunities for users to connect, network, and interact with others across a plethora of different platforms including social networking sites, chat rooms, discussion boards, online community groups, and email. Interactions on these forums can bring about opportunities to meet new people, extend relationships and develop connections across networks and are especially helpful in developing users' *social bridging capital* in which connections extend beyond the usual networks which users may occupy. Social capital theory (Putman, 2000) posits that there are two types of social capital which individuals can garner from their social networks. Social bonding capital refers to the social resources which individuals can experience *within* networks, such as from close friends and family. On the contrary, social bridging capital is facilitated when individuals are able to garner social resource from experiences *across* networks. Although both of these may be fostered through internet connectivity, it is the latter of these which the internet has a rather unique capacity to provide, relative to most "offline" social networking means. Indeed, there is extensive evidence suggesting the role of online platforms such as Facebook in promoting different types of social capital (Antheunis, Vanden Abeele, & KanTERS, 2015).

In respect of the mechanisms through which social bridging capital may be garnered, this is often best understood through the notion of "strong ties" versus "weak ties" (Putman, 2000). That is, although social bonding capital is said to relate to the "strong ties" which individuals hold with their close friends and family, for example, social bridging may instead be reflective of a series of "weak ties" individuals may hold. Although the strength of these ties may not be as substantive within bridging capital, the quantity of ties which can help extend wider and more far-reaching networks should not be underestimated. As such, from a psychological perspective, social capital obtained through both these types of ties may be equally important. For example, research shows that social capital is related to psychological experiences such as; self-esteem, life satisfaction, and good health (Bargh, McKenna, & Fitzsimons, 2002; De Silva, McKenzie, Harpham, & Huttly, 2005; Helliwell & Putnam, 2004; Stanton & Dornbusch, 1995). Further, it seems that the observed direct relations between social capital and self-esteem refers does indeed refer to bridging capital (Burke, Kraut, & Marlow, 2011; Burke, Marlow, & Lento, 2010; Ellison, Steinfield, & Lampe, 2007; Ellison, Vitak, Gray, & Lampe, 2014; Stutzman et al., 2012), suggesting that these extended networks are psychologically important for experiences of well-being.

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Social capital remains an important area of study, particularly as it is a subject of debate when questioning the role of internet in real-world interactions. That is, whereas some would argue that the internet takes time away from interactions with “real world” relations, as per the principles of the Displacement Hypothesis (Kraut et al., 1998; Nie, Hill-ygus, & Erbring, 2002; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008), others would suggest that the social functionality of the internet may instead stimulate these relations as it can help increase bandwidth in communication methods (Bryant, Sanders-Jackson, & Smallwood, 2006; Subrahmanyam, Reich, Waechter, & Espinoza, 2008). The latter of these refers to the Stimulation Hypothesis, whereby the proposed increase in social functionality, enhances time spent with others to enhance social capital, thus impacting positively on well-being (Valkenburg and Peter, 2009a; 2009b). Indeed, research has supported this notion particularly in relation to how different types of social internet activities have been found to relate positively to users’ well-being. For example, Facebook users who report high levels of bridging capital from these online experiences show high levels of self-esteem (Ellison et al., 2007). Additionally, research into online gaming suggests that online bonding capital may bolster against loneliness (Kaye, Kowert, & Quinn, 2017). Further, for WhatsApp users, online bonding mediates the relationship between WhatsApp use and well-being outcomes such as social competence and self-esteem (Kaye & Quinn, 2020). More recent debate has introduced the Digital Goldilocks hypothesis (Przybylski & Weinstein, 2017), suggesting that moderate use of digital technologies such as social media use is not intrinsically harmful, and in some cases may be advantageous for connections (Etchells, Gage, Rutherford, & Munafò, 2016; Przybylski, 2014). As such, as long as the level of online social capital from technology is “about right”, then this can bring on many psychological and social benefits.

The aforementioned insights are encouraging and suggest that internet connectivity may support our efforts for social connection and have a knock-on effect for well-being. However, it is important to acknowledge that this may not be a direct or indeed universal relationship for all internet users. That is, in respect of understanding how online social capital may relate to psychological outcomes, it is pertinent to explore issues such as users’ identity motives and impression management within these spaces. Identity motives refer to the way in which individuals construct identity and has been theorised by Vignoles (2011) within the Motivated identity construction theory (MICT). This suggests that identities are socially constructed and are guided by six identity motives. These motives are: “self-esteem” motive (individuals are motivated to see themselves in a positive light); “continuity” motive (identity is continuous across time); “distinctiveness” motive (distinguishable from others); “meaning” motive (their life is meaningful); “efficacy” motive (they are competent of influencing their lives) and the “belonging” motive (they are accepted in their social networks). It has been argued that identity motives represent an important area of concern, given that different cultures may develop different ways of fulfilling these motives (Vignoles, 2011), and thus they have the potential to hold different outcomes for users representing different cultural populations. This relates to a more general notion of how impression management efforts or self-presentation strategies function online. That is, this may include understanding how individuals control the way they present themselves in an attempt to seek approval and avoid disapproval from others (Goffman, 1959). These principles have been widely applied to online settings (e.g., Bullingham & Vasconcelos, 2013) and discussion has suggested that understanding the extent to which individuals present themselves positively (compared to honestly) is important to understand the likely psychological impacts (Kim & Lee, 2011). Namely, positive self-presentation has been found to be directly associated with subjective well-being. Whereas honest self-presentation is indirectly related via perceived social support (ibid). Therefore identity motives and self-presentation strategies of internet users are important factors to consider when exploring the impacts of online social capital upon psychological outcomes.

Therefore, understanding how these experiences vary across cultures is a pertinent issue, especially given that the literature on internet connectivity and outcomes is highly Westernised. Eurocentrism is a prevalent issue in much psychological enquiry, and threatens the extent to which these issues are generalisable across a broader range of individuals. As such, there may be differential effects to observe between these populations with regards to how online social capital relates to psychosocial outcomes. With this in mind, first want to investigate how user’s utilization of online networks to either strengthen existing, or forge new, connections impacts their wellbeing:

RQ1. To what extent do online bonding and bridging capital relate to aspects of psychological well-being (loneliness, happiness and general life satisfaction)?

We then investigate the role played by individual users’ personal motivations for using online platforms in both the social capital generated and wellbeing outcomes:

RQ2. To what extent do online identity motives and self-presentation strategies mediate the relationship between online social capital and well-being?

Finally, we examine the cultural differences in motives, social capital and well-being outcomes cross-culturally.

RQ3. To what extent are the aforementioned relationships equivalent for UK and Saudi internet users?

## 1. Method

### 1.1. Design/procedure

A cross-sectional design was employed whereby data were gathered in Saudi Arabia and the UK via an online questionnaire. Many participants were students at universities in the Saudi Arabia and the UK. Potential participants were contacted by their lecturers or were invited to take part in exchange for course credit. Non-student participants were recruited from the general public via information sheets advertising the survey link or through online adverts on Twitter. The recruitment advert and online survey informed participants that the research concerned how online social networks (OSNs) have an impact on our identity; however, they did not specify the main aims of this study. The questionnaire included a short demographics questionnaire to take measures of gender, age, preferred social networking site. The main questionnaire included measures of online social capital (Williams, 2006), identity Motives (Vignoles, 2011), self-presentation strategies (Selim, Long, & Vignoles, 2016), happiness (Lyubomirsky & Lepper, 1999), satisfaction with life (Diener, 1997; Pavot, 1993) and loneliness (Russell, 1996). All participants were volunteers and were not compensated for their time. This work was reviewed by an institutional ethics committee to ensure the protection of human participants.

With regards to translation of questionnaire items, the original language of all questionnaire items was English and these were translated into Arabic, by the lead author whose first language is Arabic. The survey was then back-translated into English by a third party, and this version was checked against the original by a native English speaker. Other questions addressed concepts that were specific to British culture, and were not appropriate for an Arabic audience. Two versions of the questionnaire were used for the UK and Saudi sub-samples.

### 1.2. Participants

A total of 694 people completed the surveys, although 12 participants were excluded as they were not users of the platforms under

consideration in this research (Twitter, Facebook, Instagram). Therefore the final sample for analyses was 682, comprising 398 and 284 responses for the Saudi and UK surveys, respectively. In the UK sample, the majority of participants were female ( $n = 220$ ) with the remaining being male ( $n = 64$ ). Similarly, there was a majority of female participants in the Saudi sample ( $n = 334$ ) relative to males ( $n = 64$ ). With regards to age, the UK sub-sample had an average age of 20.63 years ( $SD = 4.73$ ), ranging from 18 to 52 years old. The Saudi sub-sample was slightly older on average at 25.60 years old ( $SD = 7.49$ ) but also with the same age range.

The majority of the participants were university students in both samples (UK = 93%, Saudi Arabia = 60%). In total, the preferred online social networking sites were Twitter (74%), Instagram (68%) and Facebook (53%). This rank varied by participants. Among the UK sub-sample, Facebook was used by all the participants (100%), followed by Instagram (62%) and by Twitter (59%). In contrast, in the Saudi sub-sample the most used social networking site was Twitter (85%), then Instagram (73%) followed by Facebook (22%).

### 1.3. Measures

#### 1.3.1. Online social capital

Online social capital was measured using the Internet Social Capital Scale (Williams, 2006). The full 40 item scale includes both online and offline bonding and bridging, but the current study only used the online social capital sub-scales to measure both bonding and bridging capital. Therefore, there were 10 items for each of the bonding and bridging sub-scales. Examples of the items include: "There is someone through WhatsApp I can turn to for advice about making very important decisions". Items were rated on a 5-point scale (1 = not characteristic of me, 5 = extremely characteristic of me), from which a mean score was calculated. Reliability analysis revealed this scale to be adequately reliable ( $\alpha_{\text{bonding}} = 0.70$ ;  $\alpha_{\text{bridging}} = .89$ ).

#### 1.3.2. Identity motives

Identity Motives were measured using a six point (1–6) scale based on Vignoles (2011) six components theory. This included motives of self-esteem ( $\alpha = 0.83$ , UK  $\alpha = 0.91$ , SA  $\alpha = 0.72$ ), continuity ( $\alpha = 0.58$ , UK  $\alpha = 0.67$ , SA  $\alpha = 0.51$ ), distinctiveness ( $\alpha = 0.73$ , UK  $\alpha = 0.80$ , SA  $\alpha = 0.69$ ), meaning ( $\alpha = 0.84$ , UK  $\alpha = 0.88$ , SA  $\alpha = 0.78$ ), efficacy ( $\alpha = 0.67$ , UK  $\alpha = 0.79$ , SA  $\alpha = 0.54$ ), and belonging ( $\alpha = 0.77$ , UK  $\alpha = 0.81$ , SA  $\alpha = 0.76$ ). The "self-esteem" motive refers to how people are motivated to think of themselves positively. The "continuity" motive means that people are motivated to see their identity as persisting over time. The "distinctiveness" motive proposes that people seek to distinguish themselves in some sense from others. The "meaning" motive relates to the drive that people feel to see their lives as meaningful. The "efficacy" motive refers to the desire to believe that one is competent and capable of influencing one's environment. Finally, the "belonging" motive relates to the need to feel that one is accepted by significant others. Each sub-scale consisted of six questions, and items were measured on a 1–6 scale. A mean score for each sub-scale was computed for the subsequent analyses.

#### 1.3.3. Self-presentation strategies

This was measured using the *Self-presentation strategies scale (OSPSS)*. As there is no widely accepted conceptual definition of online self-presentation strategies in the research literature, items for the OSPSS were developed by using various resources. Two previous qualitative studies (Selim et al., 2016) examined, respectively, motives for using OSNs, and how identity motives are pursued on Twitter. These, along with previous approaches to measuring self-presentation, informed our choice of items. The scale measures six factors with between two to four items for each: self-promotion (e.g. "If you won an award, you'd post about this on your page") ( $\alpha = 0.77$ , UK  $\alpha = 0.78$ , SA  $\alpha = 0.76$ ); acceptance seeking (e.g. "You post things in order to get compliments") ( $\alpha = 0.77$ , UK  $\alpha = 0.75$ , SA  $\alpha = 0.78$ ); self-disclosure life-streaming (e.g. "Your

profile is full of everyday small details") ( $\alpha = 0.77$ , UK  $\alpha = 0.84$ , SA  $\alpha = 0.71$ ); depth self-disclosure mind-casting (e.g. "You want to show people who you are and what you believe in") ( $\alpha = 0.68$ , UK  $\alpha = 0.64$ , SA  $\alpha = 0.71$ ); cautious self-presentation (e.g. "You usually select the pictures of comments you will post carefully") ( $\alpha = 0.69$ , UK  $\alpha = 0.64$ , SA  $\alpha = 0.71$ ); and positive impression management (e.g. "You try to create an attractive impression of yourself on your page") ( $\alpha = 0.83$ , UK  $\alpha = 0.84$ , SA  $\alpha = 0.83$ ). Participants were asked to indicate their level of agreement with each statement on a 6-point scale from 1 (strongly disagree) to 6 (strongly agree), from which a mean score for each sub-scale was calculated for subsequent analyses. The original survey contained 98 items in total. These were reduced to 20, by means of an exploratory structural equation model, accounting for latent acquiescence (Aichholzer, 2014) and a measurement invariance procedure to assure a comparable measure between UK and SA participants. This model presented an acceptable fit (CFI = 0.96, RMSEA = 0.05, SRMR = 0.04,  $\chi^2(252) = 467.95$ ,  $p < .01$ ), for a metric measurement comparing UK and SA samples (Selim et al., 2016).

#### 1.3.4. Happiness

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) was used to measure overall happiness. This scale includes four items which all include the prefix "In general, I consider myself ...". The items then are presented to include anchor descriptions on which participants indicate their endorsement on a 7-point scale. For example, the first item is: "In general, I consider myself .... "Not a very happy person" (1) to "A very happy person" (7). A mean score was calculated from participants' responses from these four items and used in the analyses. This measure was found to be adequately internally consistent ( $\alpha = 0.76$ ).

#### 1.3.5. General life satisfaction

The *Satisfaction with Life Scale (SWLS)* (Diener et al., 1997; Pavot & Diener, 1993) was used to measure general life satisfaction. This scale is a short 5-item instrument designed to measure global cognitive judgments of one's lives. The answers to these questions were reported on a 7-point Likert scale (1–7). The reliability test for the scale showed a relatively high internal consistency, ( $\alpha = 0.86$ ).

**Table 1**  
Descriptive analysis of study variables for the UK and Saudi sub-samples.

Construct	Variable	Saudi	UK
		<i>M (SD)</i>	<i>M (SD)</i>
Online Social Capital	Bonding	2.94 (.63)	2.99 (.57)
	Bridging	3.31 (.76)	3.39 (.67)
Identity motives	Self-esteem	4.25 (.84)	3.54 (1.04)
	Continuity	4.01 (.68)	3.84 (.69)
	Distinctiveness	3.93 (.80)	3.84 (.77)
	Meaning	4.25 (.94)	3.50 (.97)
	Efficacy	3.85 (.67)	3.54 (.77)
	Belonging	4.39 (.88)	4.24 (.82)
	Self-presentation strategies	3.93 (1.20)	4.18 (.87)
Psychosocial well-being	Self-promotion	3.54 (1.13)	3.18 (1.05)
	Acceptance seeking	3.36 (1.13)	2.98 (.92)
	Self-disclosure life streaming	3.12 (1.27)	2.48 (1.21)
	Self-disclosure- mind casting	3.86 (1.06)	3.75 (.83)
	Cautious self-presentation	4.12 (1.03)	4.14 (.81)
Psychosocial well-being	Loneliness	2.07 (.52)	1.93 (.50)
	Happiness	4.57 (1.20)	4.58 (1.26)
	General life satisfaction	4.62 (1.36)	3.36 (1.23)

**Table 2**  
Correlation analysis of study variables for the UK and Saudi sub-samples.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1. Age																					
2. Gender	-.327**																				
3. Education	.479**	-.129*																			
4. Bonding	-.069	-.430	-.199*																		
5. Bridging	.090	-.059	.088	.362**																	
6. Self promotion	-.156*	.067	-.065	.261**	.315**																
7. Acceptance seeking	-.050	-.057	-.088	.300**	.222**	.610**															
8. Self-disclosure life streaming	-.236**	.106*	-.184**	.292**	.201**	.601**	.510**														
9. Self disclosure-mind casting	.050	-.011	.095	.227**	.486**	.423**	.312**	.420**													
10. Cautious self-presentation	.090	-.019	.081	.220**	.368**	.428**	.499**	.225**	.361**												
11. Positive impression management	-.072	.025	-.002	.282**	.394**	.660	.659**	.468**	.488**	.646**											
12. Self-esteem	.237**	.023	.254**	-.008	.258**	.051	-.099*	-.053	.222**	.268**	.102*			.613**	.674**	.419**	.581**	.680**	.680**	-.613**	-.553**
13. Meaning	.234**	-.072	.212**	-.041	.209**	.043	-.108*	-.055	.200**	.239**	.057	.751**		.541**	.380**	.711**	.531**	.488**	-.457**	-.421**	
14. Efficacy	.147*	.038	.204**	.013	.222**	.103*	-.094	-.026	.188**	.212**	.124*	.688**	.676**		.439**	.517**	.531**	.506**	-.506**	-.365**	
15. Distinctiveness	.038	.040	.118*	-.018	.237**	.081	-.050	-.036	.259**	.182**	.130*	.512**	.489**	.504**		.426**	.390**	.173**	-.162*	-.137*	
16. Continuity	.241**	-.057	.206**	-.053	.195**	.051	-.092	-.044	.214**	.224**	.077	.631**	.683**	.545**	.418**		.637**	.480**	-.521**	-.439**	
17. Belonging	.198**	.038	.142*	.072	.307**	.116*	.004	.033	.306**	.373**	.214**	.702**	.685**	.588**	.420**	.570**		.605**	-.560**	-.714**	
18. General Happiness	-.011	.000	.080	.0783	.224**	.176**	.070	.149*	.220**	.231**	.225**	.454**	.453**	.418**	.306**	.307**	.388**		-.655**	-.556**	
19. General life satisfaction	-.178**	.491**	-.036	-.062	-.045	-.050	-.104*	-.027	-.119*	-.031	-.036	.201**	.207**	.255**	.100*	.128*	.170**	.244**		.535**	
20. Loneliness	-.115*	-.064	-.072	-.041	-.149*	-.018	.084	-.055	-.105*	-.053	-.049	-.468**	-.460**	-.447**	-.172**	–	-.545**	-.429**	-.280**		
																325**					

\* = significant at  $p < .05$  level, \*\* = significant at  $p < .001$  level

Note: UK sub-sample is on top right half of correlation matrix, Saudi-sub-sample is on the bottom left half of the matrix

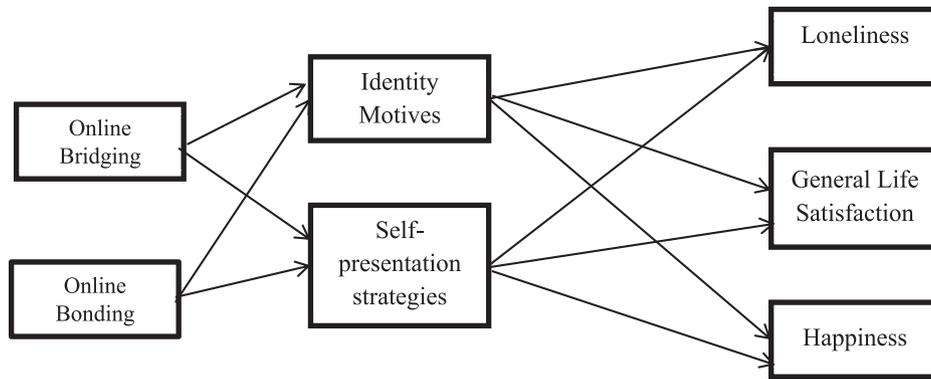


Figure 1. Conceptual model showing identity motives and self-presentation strategies as mediators between online social capital and psychosocial outcomes.

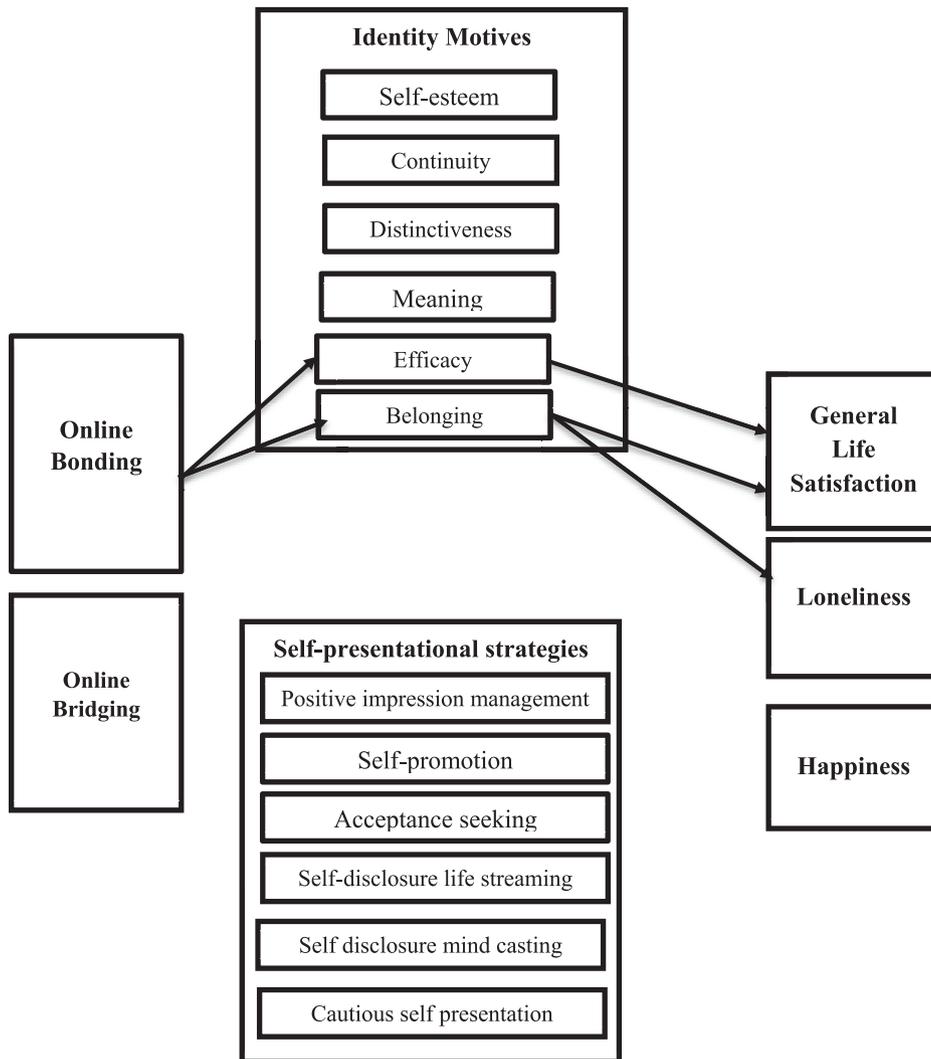


Figure 2. Visual summary of mediational analyses of UK sub-sample.

1.3.6. Loneliness

Loneliness was measured using two items from the UCLA Loneliness scale (Russell, Peplau, & Ferguson, 1978). These statements were; “I feel alone most of the time” and “I often feel let down”. This was measured on a 5-point scale (1 = not characteristic of me, 5 = extremely characteristic of me), and a total score was obtained. The current study found this scale to be adequately reliable ( $\alpha = 0.89$ ).

2. Results

2.1. Analytic strategy

We first conducted descriptive analysis of all study variables for the two sub-samples (UK and Saudi Arabian). Following this, we then conducted correlations to examine the relationships between all study

variables. From this, if variables were significantly correlated with one or more of the outcomes of Happiness, General Life Satisfaction, or Loneliness and either of the online social capital factors, we then used linear regression to determine their predictive values on these well-being outcomes. Finally, we conducted mediation analyses via the PROCESS Macro in SPSS, to determine if the effects of social capital on the well-being outcomes were mediated by the identified self-presentation strategies and identity construction measures.

2.2. Descriptive and correlational analyses

Descriptive and correctional analysis were undertaken on the study variables for each sub-sample. See Tables 1 for descriptive analysis.

Following this, two Pearson correlations were performed on all the study variables for the two sub-samples. See Table 2. For the UK sample, significant negative correlations were found between online bonding capital with general life satisfaction ( $r = -0.146, p < .05$ ), and loneliness ( $r = -0.164, p < .05$ ). Conversely online bridging capital was positively related to loneliness ( $r = 0.139, p < .05$ ). However, within the Saudi sub-sample, online bonding capital showed no significant relationships with any of the well-being variables (all  $p > .05$ ), but online bridging by contrast did. Specifically, online bridging capital was positively related to happiness ( $r = 0.224, p < .001$ ) and negatively with loneliness ( $r = -0.149, p < .05$ ).

With regards to the relationships between the two types of online social capital and identity motives and self-presentation strategies, there were some intriguing observations to note between the two-sub-samples. That is, in the Saudi sub-sample, online bridging capital was positively related to all identity motives (all  $p < .001$ ) and self-presentation strategies (all  $p < .001$ ). However, in the UK sub-sample, although online bridging was positively correlated to all the self-presentation strategies (all  $p < .001$ ) except cautious self-presentation ( $r = 0.101, p > .05$ ), it was only related (negatively) to one of the identity motives, specifically self-esteem ( $r = -0.144, p < .05$ ).

In respect of online bonding, there were also some variations to note. That is, in the Saudi sub-sample, online bonding was positively correlated to all the self-presentation strategies (all  $p < .001$ ). but none of the identity motives (all  $p > .05$ ). For the UK sub-sample, online bonding was (positively) related only the self-presentation strategies of self-promotion ( $r = 0.186, p < .05$ ), self-disclosure mind casting ( $r = 0.301, p < .001$ ) and positive impression management ( $r = 0.164, p < .05$ ). In respect of the identity motives, online bonding was related positively to efficacy ( $r = 0.183, p < .05$ ) and belonging ( $r = 0.169, p < .05$ ).

With regards to the relationships between the identity motives and self-presentation strategies with the well-being outcomes (happiness, general life satisfaction, loneliness), there were again some distinctions between sub-samples. For self-presentation strategies, within the UK sub-sample, only the self-presentation strategy of self-disclosure mind-casting

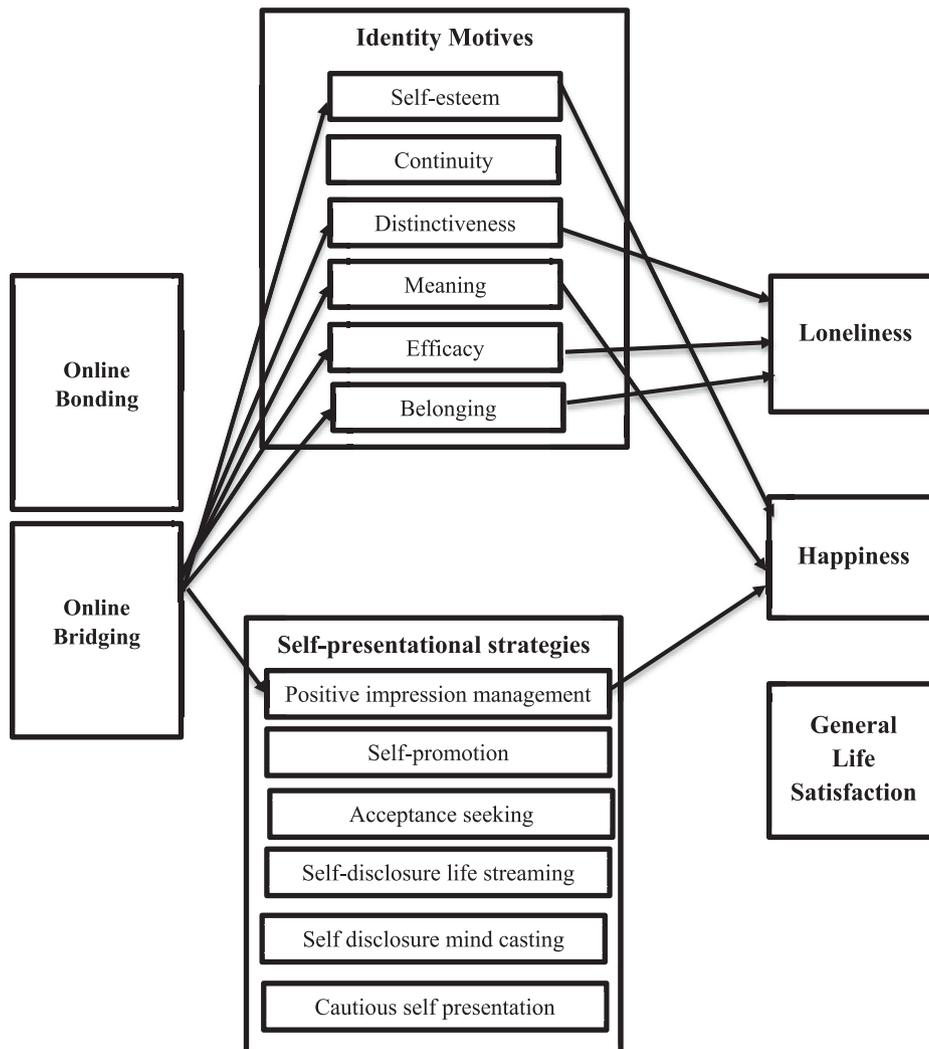


Figure 3. Visual summary of mediational analyses of Saudi sub-sample.

was (negatively) related to loneliness ( $r = -0.129, p < .05$ ). However, the Saudi sub-sample revealed there to be relationships between all the self-presentation strategies with at least one of the well-being outcomes. Namely, self-promotion, self-disclosure life streaming, cautious self-presentation, positive impression management and self-disclosure mind-casting were all positively related to happiness (all  $p < .05$ ). Additionally, acceptance-seeking and self-disclosure mind-casting were negatively related to general life satisfaction (both  $p < .05$ ), with the latter of these being also negatively related to loneliness ( $r = -0.105, p < .05$ ). For the identity motives, in the UK sub-sample, all were negatively related to loneliness (all  $p < .05$ ) and general life satisfaction (all  $p < .05$ ), but all positively related to happiness (all  $p < .001$ ). Interestingly, although the Saudi sub-sample showed equivalent patterns for happiness (all  $p < .05$ ) and loneliness (all  $p < .05$ ), all identity motives were positively (rather than negatively) correlated with general life satisfaction (all  $p < .05$ ).

2.3. UK sub-sample

2.3.1. Regression analyses

Based on the correlation findings, three stepwise regression analyses were conducted. First, was to explore the predictive value of online bonding, self-disclosure mind-casting, efficacy, and belonging on general life satisfaction. Secondly, to explore the predictive value of online bonding, self-disclosure mind-casting, efficacy, and belonging on loneliness. The final regression was to determine the predictive value of online bridging and self-efficacy on loneliness.

In the first regression with general life satisfaction as the outcome variable, in Step 1 online bonding was entered as a predictor variable, and in Step 2, self-disclosure mind-casting, efficacy, and belonging were entered. In the first model online bonding explained 14.6% of the

variance [ $R^2 = 0.146, F(1,270) = 5.88, p < .05$ ], and in the second model the predictors explained 61.3% of the variance [ $R^2 = 0.613, F(4,267) = 40.10, p < .001$ ]. Specifically, it found that efficacy ( $\beta = -0.289, p < .001$ ) and belonging ( $\beta = -0.405, p < .001$ ) significantly predicted general life satisfaction. Initially, online bonding predicted higher life satisfaction, but when the Step 2 predictor variables were added, these significantly predicted general life satisfaction and the effect of online bonding became non-significant.

In the second regression model, loneliness was the outcome variable. In Step 1, online bonding was entered, followed in Step 2 self-disclosure mind-casting, efficacy, and belonging. In the first model, bonding explained 2.7% of the variance [ $R^2 = 0.027, F(1,270) = 7.477, p < .05$ ]. It was found that online bonding significantly predicted loneliness ( $\beta = -0.164, p < .05$ ). In the second model, the predictors explained 51.2% of the variance [ $R^2 = 0.512, F(4,267) = 70.15, p < .001$ ]. Specifically, it was found that belonging ( $\beta = -0.722, p < .001$ ) significantly predicted loneliness. Initially, online bonding predicted lower loneliness, but when belonging was added, this was a negative predictor of loneliness.

In the third regression model, loneliness was the outcome variable, In Step 1, age was entered, followed in Step 2 with online bridging, and in Step 3, self-efficacy. In the first model, age explained 4.2% of the variance, which was not significant [ $R^2 = 0.042, F(1,270) = 0.49, p = .49$ ]. In the second model, the predictors explained 14.3% of the variance which was also not significant [ $R^2 = 0.143, F(2,269) = 2.81, p = .062$ ]. In the third model, the predictors explained 55.8% of the variance [ $R^2 = 0.558, F(3,268) = 40.29, p < .001$ ]. Specifically, it was found that self-efficacy significantly predicted loneliness. ( $\beta = -0.545, p < .001$ ) (see Figure 1).

2.3.2. Mediation analyses

Based on the results of these regressions, two mediation analyses were conducted (see Figure 2 for summary for UK sub-sample). The first

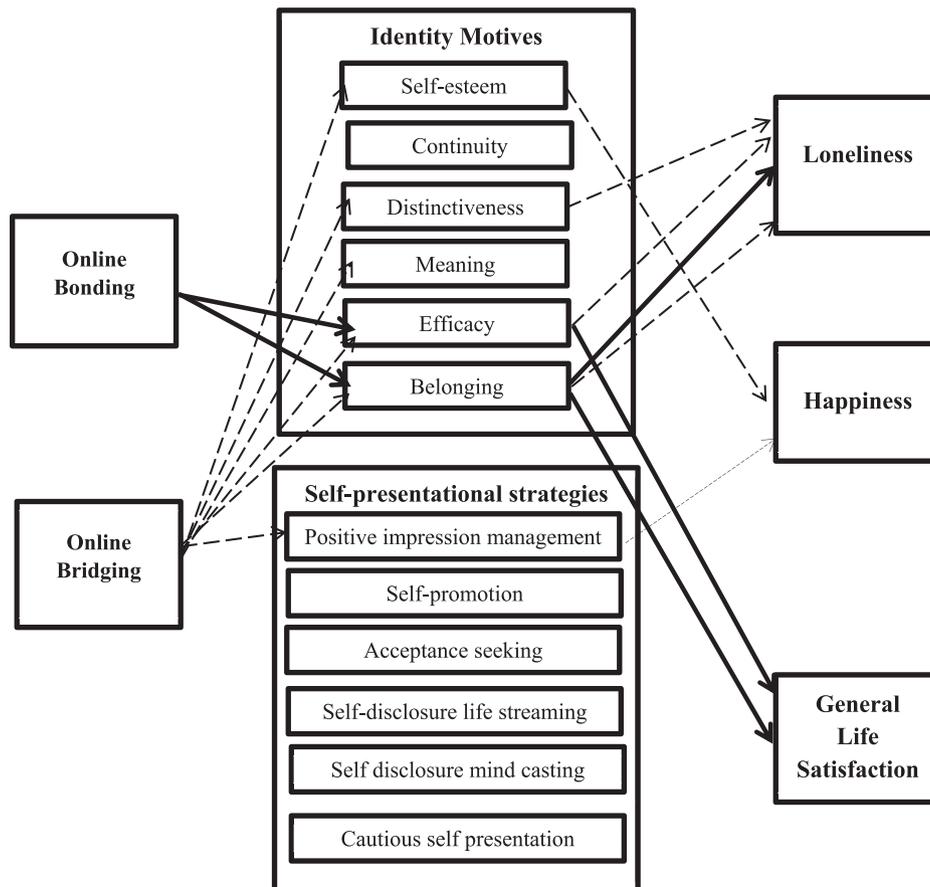


Figure 4. Overall conceptual framework summary of findings.

was used to investigate the hypothesis that efficacy and belonging mediate the effect of online bonding on general life satisfaction. Results indicated that bonding was a significant predictor of both efficacy,  $B = 0.2477$ ,  $SE = 0.0810$ ,  $p < .005$ , and belonging,  $B = 0.2419$ ,  $SE = 0.0858$ ,  $p < .01$ , and that both efficacy,  $B = -0.4576$ ,  $SE = 0.0912$ ,  $p < .005$ , and belonging,  $B = -0.6069$ ,  $SE = 0.0861$ ,  $p < .005$ , were significant predictors of general life satisfaction. Bonding was no longer a significant predictor of GLS after controlling for the mediators,  $B = -0.0541$ ,  $SE = 0.1061$ ,  $p = .6105$ , consistent with full mediation. Approximately 37.5% of the variance in general life satisfaction was accounted for by the predictors ( $R^2 = 0.375$ ). The indirect effect was tested using a percentile bootstrap estimation approach with 5000 samples, implemented with the PROCESS macro Version 3.2 (Hayes, 2017). These results indicated the indirect coefficients for efficacy,  $B = -0.1134$ ,  $SE = 0.0507$ , 95% CI =  $-0.2266$ ,  $-0.0266$ , and belonging,  $B = -0.1468$ ,  $SE = 0.0647$ , 95% CI =  $-0.2842$ ,  $-0.0271$ , were significant. Higher online bonding resulted in higher efficacy and belonging, which resulted in lower general life satisfaction.

In the second mediational analysis, this was to establish the extent to which belonging mediated the effect that online bonding on loneliness. Results indicated that online bonding was a significant predictor of belonging,  $B = 0.2419$ ,  $SE = 0.0858$ ,  $p < .01$ , and that belonging,  $B = -0.4373$ ,  $SE = 0.0268$ ,  $p < .005$ , was a significant predictor of loneliness. Online bonding was no longer a significant predictor of loneliness after controlling for belonging,  $B = -0.0396$ ,  $SE = 0.0383$ ,  $p = .302$ , consistent with full mediation. Approximately 51.1% of the variance in satisfaction was accounted for by the predictors ( $R^2 = 0.511$ ). The indirect effect was tested using a percentile bootstrap estimation approach with 5000 samples, implemented with the PROCESS macro Version 3.2 (Hayes, 2017). These results indicated the indirect coefficient belonging,  $B = -0.1058$ ,  $SE = 0.0433$ , 95% CI =  $-0.1920$  –  $0.0235$ , was significant. Higher online bonding resulted in higher belonging, which resulted in reduced loneliness.

## 2.4. Saudi sub-sample

### 2.4.1. Regressions

Based on the correlations (see Table 1), two linear regression analyses were conducted: one to determine the predictive value of online bonding and associated variables on happiness, and one to determine the predictive value of online bridging and associated variables on Loneliness.

In the first regression model happiness was the outcome variable. In Step 1, online bridging was entered, and then in Step 2 self-promotion, self-disclosure, depth self-disclosure mind-casting, cautious self-presentation, positive impression management, and all six measures of identity construction were entered. In the first model online bridging explained 22.4% of the variance [ $R^2 = 0.224$ ,  $F(1,397) = 20.98$ ,  $p < .001$ ]. In the second model the predictors explained 53.1% of the variance [ $R^2 = 0.531$ ,  $F(9,389) = 16.93$ ,  $p < .001$ ]. It was found that positive impression management ( $\beta = 0.179$ ,  $p < .005$ ), SE ( $\beta = 0.199$ ,  $p < .05$ ), and meaning ( $\beta = 0.260$ ,  $p < .001$ ) significantly predicted happiness. Initially, higher online bridging predicted happiness, but when positive impression management, self-efficacy, and meaning were added, high scores in these measures predicted higher happiness, and the effect of online bridging became non-significant.

In the second regression model, Loneliness was the outcome variable. In Step 1, age was entered as the predictor variable. Following this, Step 2 consisted online bridging as the entered predictor variable. Finally, Step 3 included depth self-disclosure mind casting and all 6 measures of identity construction as predictors. In the first model age explained 11.5% of the variance [ $R^2 = 0.115$ ,  $F(1,396) = 5.33$ ,  $p < .05$ ]. In the second model the predictors explained 17.6% of the variance [ $R^2 = 0.176$ ,  $F(2,395) = 6.34$ ,  $p < .005$ ]. It was found that both age ( $\beta = -0.103$ ,  $p < .05$ ) and online bridging ( $\beta = -.0.134$ ,  $p < .05$ ) significantly predicted loneliness. In the third model, the predictors explained 59.2% of the variance [ $R^2 = 0.592$ ,  $F(9,388) = 23.28$ ,  $p < .001$ ]. It was found

that efficacy ( $\beta = -0.187$ ,  $p < .005$ ), distinctiveness ( $\beta = 0.159$ ,  $p < .05$ ), and belonging ( $\beta = -0.394$ ,  $p < .001$ ) significantly predicted happiness. Initially, both lower and age lower online bridging predicted lower loneliness, but when efficacy, distinctiveness and belonging were added, high scores efficacy and belonging, and low scores in distinctiveness, predicted lower loneliness, and the effect of bridging became non-significant.

### 2.4.2. Mediation analyses

Based on the results of these regressions, two mediation analyses were conducted (see Figure 3 for Saudi sub-sample). In the first, regression analysis was used to investigate the hypothesis that positive impression management, self-esteem and meaning mediates the effect that online bridging has on happiness. Results indicated that online bridging was a significant predictor of positive impression management,  $B = 0.6790$ ,  $SE = 0.0794$ ,  $p < .005$ , self-esteem,  $B = 0.3104$ ,  $SE = 0.0585$ ,  $p < .005$ , and meaning,  $B = 0.2805$ ,  $SE = 0.0659$ ,  $p < .005$ . Also, positive impression management,  $B = 0.1703$ ,  $SE = 0.0469$ ,  $p < .05$ , self-esteem,  $B = 0.3259$ ,  $SE = 0.0945$ ,  $p < .05$ , and meaning,  $B = 0.3390$ ,  $SE = 0.0838$ ,  $p < .05$ , were significant predictors of happiness. These results support the mediational hypothesis. Online bridging was no longer a significant predictor of happiness after controlling for the mediators,  $B = 0.0748$ ,  $SE = 0.0832$ ,  $p = .3694$ , consistent with full mediation. Approximately 27.1% of the variance in satisfaction was accounted for by the predictors ( $R^2 = 0.271$ ). These results indicated the indirect coefficients for positive impression management,  $B = 0.1157$ ,  $SE = 0.0390$  95% CI =  $0.0439$ ,  $0.1969$ , self-esteem,  $B = 0.1012$ ,  $SE = 0.0355$ , 95% CI =  $0.0409$ ,  $0.1784$ , and belonging,  $B = 0.331$ ,  $SE = 0.17$ , 95% CI =  $0.0377$ ,  $0.7004$ , were significant. Online bridging resulted in higher positive impression management, self-esteem and meaning, which resulted in higher happiness.

The second analysis investigated the hypothesis that efficacy, distinctiveness, and belonging mediate the effect that online bridging on loneliness. Results indicated that online bridging was a significant predictor of efficacy,  $B = 0.2137$ ,  $SE = 0.0471$ ,  $p < .005$ , distinctiveness,  $B = 0.2728$ ,  $SE = 0.0562$ ,  $p < .005$ , and belonging,  $B = 0.3898$ ,  $SE = 0.0606$ ,  $p < .005$ . Further that efficacy,  $B = -0.1963$ ,  $SE = 0.0423$ ,  $p < .005$ , distinctiveness,  $B = 0.0951$ ,  $SE = 0.0317$ ,  $p < .005$ , and belonging,  $B = -0.2742$ ,  $SE = 0.0312$ ,  $p < .005$ , were significant predictors of loneliness. These results support the mediational hypothesis. Online bridging was no longer a significant predictor of loneliness after controlling for the mediators,  $B = 0.0109$ ,  $SE = 0.0327$ ,  $p = .7394$ , consistent with full mediation. Approximately 33.7% of the variance in satisfaction was accounted for by the predictors ( $R^2 = 0.337$ ). These results indicated the indirect coefficients for efficacy,  $B = 0.0419$ ,  $SE = 0.0136$  95% CI =  $-0.0715$ ,  $-0.0186$ , distinctiveness,  $B = 0.0259$ ,  $SE = 0.0114$ , 95% CI =  $0.0073$ ,  $0.0517$ , and belonging,  $B = -0.1069$ ,  $SE = 0.0212$ , 95% CI =  $-0.1524$ ,  $-0.0691$ , were significant. Higher online bridging resulted in higher efficacy, distinctiveness, and belonging, which led to reduced loneliness.

## 3. Discussion

Through a cross-cultural perspective, we sought to understand how Internet users' different identity motives and self-presentation strategies are important when exploring the impacts of online social capital upon psychosocial outcomes. Specifically, we focused on loneliness, happiness and satisfaction with life, and the extent to which these relationships may be equivalent for UK and Saudi internet users. The key findings and implications are discussed in the following sections, and a summary of the findings from the mediation analyses is presented in Figure 4 for reference.

With respect to online social capital and its relationship to psychosocial well-being outcomes, there were some cross-cultural variations. Largely this related to the role of online bonding, inasmuch that it was only for UK internet users in which online bonding related to

psychosocial outcomes (general life satisfaction and loneliness). For Saudi users, no such associations were found. However, online bridging appeared to be particularly important for both sub-samples, albeit in different ways. That is, it was found to be positively related to loneliness in UK users, but negatively related in Saudi users. Additionally, it also positively related to happiness in Saudi users. Therefore, it appears that online social capital has differential cross-cultural impacts. Specifically, that for Saudi users, the social resources gained from those extended, diverse networks through bridging capital draws out favourable psychosocial experiences which do not seem to be gained from the close, personal bonding relationships. In this sense, opportunities to reach out and express oneself online to wider networks presents an important psychological mechanism for Saudi users which is perhaps not deemed as critical for UK users in their bonding capital affordances. This is corroborated by the other findings that for Saudi internet users, this bridging capital was positively related to all identity motives and self-presentational strategies. Whereas for UK users, although bridging capital also related favourable to most of the self-presentation strategies, conversely it related negatively to only one identity motive of self-esteem. These variations in how Saudi versus UK users are capitalising on identity exploration and presentation may go some way to explain why aspects of online capital such as bridging has these differential impacts.

A key observation from the findings was that identity motives appeared to be impactful upon all psychosocial outcome measures for both UK and Saudi users. However, the nature of these relationships revealed some distinctions. Namely, for general life satisfaction, in the UK sub-sample, all identity motives were negatively related to this, whereas in the Saudi sample, they were all positively related. However, patterns between all identity motives and loneliness (negatively related) and happiness (positively related) were consistent across sub-samples. The variations here on general life satisfaction are intriguing and go some way to highlight that for Saudi internet users, there is perhaps a more general tendency to have more favourable perceptions of one's own identity, particularly through how this may be expressed effectively online, and thus relates favourably to satisfaction with life. This is largely similar to other findings from the current study in respect of online self-presentation strategies. That is, within the UK sub-sample, only the self-presentation strategy of self-disclosure mind-casting was (negatively) related to loneliness. However, the Saudi sub-sample revealed there to be relationships between all the self-presentation strategies with at least one of the well-being outcomes. Again, this may suggest that for Saudi internet users, online environments are an effective mechanism for favourable self-presentation efforts and thus has positive implications for aspects of one's well-being.

To our knowledge, this is the first cross-cultural exploration of how online social capital relates to well-being via the range of presentational efforts. Despite this, one limitation is that this was focused on internet users rather generally, rather than how these constructs relate to specific internet domains or platforms. Therefore, the extent to which the different forms of social capital are relevant across internet domains and how these may hold differential impacts upon psychosocial functioning remains under-explored in the current study. Further, identity and presentational efforts also would be expected to vary across internet domains, therefore establishing how these findings apply across different contexts would be a fruitful avenue for subsequent work. Another limitation relates to the samples, which were predominantly female in both Saudi Arabia and the UK. Previous research indicates that gender differences exist in online self-presentation and identity construction (e.g., Huang, Kumar, & Hu, 2018). Caution should be exercised when generalising from the current findings and gender differences in this area is something which should be investigated in future research.

In summary, the current research sought to explore cross-cultural variations in the extent to which online social capital relates to psychosocial well-being, but particularly how aspects of self-presentation and identity motives may mediate these relationships. The current findings

illuminate there are indeed distinctions between UK and Saudi internet users in this regard, specifically when recognising that online bridging opportunities may be particularly psychologically-relevant for Saudi users for identity expression and presentation. However, similarities between these cultures are also evident, insofar as how identity motives, such as for maintaining self-regard and belonging may be a mechanism by which expression on online platforms may help fulfil psychological needs and thus support aspects of psychosocial well-being.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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