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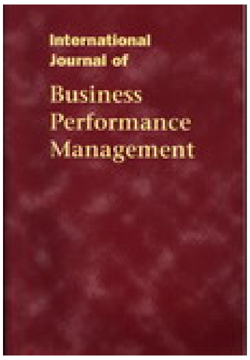

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Financial education is more precious than money – examining the role of financial literacy in enhancing financial wellbeing among Saudi women

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Abstract: The study explores the role of financial literacy, financial socialisation, and certain demographic characteristics (such as income, education, father's education and mother's education) in enhancing financial wellbeing through developing/promoting financial self-efficacy and financial coping behaviours, among Saudi women. There is sparse research evidence available in the literature that examines the levels of financial literacy among Saudi women and how it contributes to their financial wellbeing and the related financial behaviours, this paper therefore, provides important evidence to bridge this important research gap. Based on PLS-based path modelling performed over a set of 1,338 responses from Saudi women, we found a significant positive effect of both the antecedents (i.e., financial literacy and the financial socialisation) on financial wellbeing mediated through financial self-efficacy and (financial) coping behaviours. Similarly, demographic characteristics including women respondents' income, education, father's education, and mother's education are partially positively related to financial self-efficacy as well as the financial coping behaviour. However, demographic characteristics were not seen to be significantly related to financial wellbeing. Besides bridging significant research gaps in the literature, this study provides practical implications for Saudi women to enhance their financial wellbeing through enhancing financial literacy and financial socialisation.

Keywords: financial literacy; financial wellbeing; financial self-efficacy; financial socialisation; financial coping behaviour; Saudi Arabia.

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1 Introduction

Financial education was recognised as a strategic priority by the G8 as early as 2006 (OECD, 2006). However, it was the global financial crisis of 2008–2009 which highlighted the hitherto unacknowledged pervasiveness of financial illiteracy as a societal issue (Ali et al., 2021; DeLaune et al., 2010; Sharif and Naghavi, 2020), prevalent even in developed countries like the USA (Lusardi and Mitchell, 2011; Mandell, 2008; OECD, 2006). Financial literacy (FL) has been defined by OECD INFE (2011) as, "A combination of awareness, knowledge, skill, attitude and behaviour necessary to make sound financial decisions and ultimately achieve individual financial wellbeing." Importantly, it highlights that knowledge of financial products is only one aspect of FL; the process of applying this understanding as well as the outcomes generated in terms of financial decisions are also important dimensions (Huston, 2010).

The degree (or lack thereof) of financial knowledge, and subsequent financial decision-making, has wide-ranging implications at different levels (individual and societal). For the individual level less financially literate individuals exhibit lower retirement planning, lower awareness about stock market, and inadequate debt management (Lusardi, 2008), increased risk of falling for fraudulent Ponzi schemes, and enhanced vulnerability to exploitation by banks and financial institutions (Atkinson et al., 2007; Atkinson and Messy, 2011; OECD, 2006) as well as lower overall acquisition of wealth (Lusardi and Mitchell, 2011). At a more macro-societal level lower FL results in uneven distribution of wealth, lower saving rates and inflation (Mandell and Klein, 2009), negative impacts on family and community economic wellbeing (Hilgert et al., 2003) and reduced deterrence for unscrupulous firms entering the market (Hilgert et al., 2003; Wolfe-Hayes, 2010). A gendered consideration of FL highlights several implications for women specifically. First, existing research across different contexts highlights that, women financial knowledge about debt literacy, confidence, enthusiasm, and even willingness to learn than men (Atkinson et al., 2006; Borden et al., 2008; Lusardi and Mitchell, 2008; Lusardi, 2008; Lusardi and Tufano, 2015; Nițoi et al., 2022; Khan and Surisetti, 2022). Second, women's financial autonomy and decision-making freedom may be constrained by a range of socio-institutional factors. For example, in patriarchal societies (Filipiak and Walle, 2015; Zhao and Wry, 2016) gendered task allocation may result in male partners specialising in financial decisions while women take on household responsibilities (Fonseca et al., 2012) thereby reducing women's overall FL while increasing their financial risk (Lusardi and Mitchell, 2008).

This paper responds to a range of calls advocating further research on FL (see Fonseca et al., 2012; Gonçalves et al., 2021; Lusardi and Tufano, 2015; Nițoi et al., 2022; Philippas and Avdoulas, 2020) by adopting a gendered lens in Saudi context. This is a particularly unique context because recent public policy initiatives have aimed to improve gender equality, increase female participation in the labour market, and reduce barriers to women's education and careers (Ahmad et al., 2019; Naseem and Dhruva, 2017; *Arab News*, 2019; Vision 2030, 2019). This public policy impetus offers a positive setting for improving women's FL in terms of both knowledge acquisition and freedom of decision-making. However, Saudi Arabia still exhibits entrenched patriarchal norms that may constrain women's decision-making across many spheres of life (such as education, careers, marriage, finance management and so on) (Syed et al., 2018; Gonçalves et al., 2021; Moshashai et al., 2020).

Extant literature highlights importance of the FL contingent upon the range of individual and societal-level implications (Ali et al., 2021; Sharif and Naghavi, 2020). However, there is scant context-specific research available on FL, and financial wellbeing, particularly for Saudi Arabian women (Ali et al., 2021). Some recent studies such as Alshebami and Aldhyani (2022), Saber (2020) and Shehata et al. (2021) on the FL, saving and the related financial behaviours among Saudi youth, a lack of FL, among different segments of Saudi respondents is observed as well as lack of research evidence in the context of Saudi Arabia. Examining the FL and financial wellbeing among women in Saudi Arabia has become even more important due to financial crises and increasing cost of living in the Kingdom of Saudi Arabia (Saber, 2020). Saudi Arabia offers a unique socio-institutional context whereby recent public policy initiatives aim to increase female emancipation by increasing females' participation in education and employment, signalling the potential for increased FL (Ali et al., 2019; Badghish et al., 2018a, 2018b). However, socio-cultural values rooted in enduring patriarchal structures and an overarching Islamic ideology may discourage women's involvement in economic activities and limit their engagement with FL and financial wellbeing. Thus, the main of this research includes benchmarking extent of the FL of women in Saudi Arabia, to examine it impact their financial socialisation, self-efficacy, coping behaviours and wellbeing. In the section below, we offer our theoretical framework, elucidating on several constructs relevant to FL, crucially incorporating a gendered perspective. We then offer an overview of women's role in the socio-institutionally distinctive context of Saudi Arabia to establish the backdrop against which we study FL.

2 Theoretical framework and hypotheses of study

As a construct FL remains under-conceptualised, with currently no standardised instruments to measure it (Huston, 2010). In broad terms, FL is the amount of information, understanding, and awareness that individuals have about financial products, signalling a comprehension of various financial notions like interest rates, inflation, savings, and risk that impact effective financial decision-making (Lusardi and Mitchell, 2011; World Bank, 2013). This highlights the simultaneous importance of both the knowledge and application/outcome dimensions (Huston, 2010), whereby the former implies the comprehension about financial notions and products and the latter implies to the capability and skill of making successful financial choices.

Both dimensions become quite relevant and crucial when considering the link among FL, and wellbeing (financial). Knowledge, cognition and ability all impact FL but on their own cannot guarantee an improvement in the individual's financial wellbeing unless applied financial decision-making is also accounted for (van Rooij et al., 2011). Such individual-level confidence in applying such knowledge in turn subsumes a range of behavioural, cultural and social factors (Huston, 2010). The gendered view about the effect of FL on FWB is specifically salient with respect to women. First, women (and minority groups) on account of their higher levels of vulnerability in society often tend to have differential access to information (compounded by demographic characteristics like profession and education) (Shobha and Shalini, 2015; Baker et al., 2021; Bindabel and Salim, 2021). Second, the FL and subsequent women's financial wellbeing has compounded implications at a societal level since women have longer lives and shorter work tenures than men (due to care-related career breaks) and overall lower earnings and pension pay outs than men (due to a persistent gender pay gap) (Fonseca et al., 2012).

What is common across all these studies and different conceptualisations of FL are that it is too complicated a construct to be captured in one single measure, necessitating the consideration of a range of dimensions/domains (Atkinson et al., 2006). Considering these range of FL domains in turn highlights potentially important gender differentials in financial wellbeing – do men and women have equal responsibility for making and managing money? Do they have equal freedom to plan? Do both genders have equal access to information?

2.1 FL, financial wellbeing and financial self-efficacy

Several studies in extant literature suggest that FL is associated with FWB. For instance, CFPB (2015) highlights that an individual's financial wellbeing depends upon their FL efforts that is, the greater their FL, the higher their financial wellbeing. Prawitz et al. (2006) also argue that an individual's overall psychological wellbeing and life satisfaction is related to their personal finance. Therefore, financial wellbeing is an important topic in personal finance, examined through a range of constructs (Serido et al., 2010). There is recognition that financial wellbeing depends upon both subjective and objective parameters of one's personal financial situation. Quantifiable/objective factors encompass income, savings, loans, an understanding of financial products, financial management skills and budget management. Subjective factors include one's satisfaction with existing and future financial condition (Cox et al., 2009). Therefore, financial wellbeing refers to perceptions of an individual towards his/her financial circumstances (and financial stress) and the ability to cover living expenditure and address any financial emergencies. This study aims to consider both objective and subjective measures to examine how individuals feel about their financial wellbeing.

Additionally, scholars including Mindra and Moya (2017) and Noor et al. (2020) highlight that FL enhances FSE. The FSE has its roots in the social cognitive theory proposed by Bandura (2005) where it corresponds to an individual's belief and capability in achieving success in specific situations (Bandura, 1977). Higher levels of self-efficacy among individuals increase their perceived physical and mental wellbeing which in turn results in positive changes in their behaviours (Bandura, 1977, 1982; Lim et al., 2014). In personal finance, FSE is described as a general understanding and confidence in managing their finances in general (Danes and Haberman, 2007; Grable et al., 2011; Lim et al., 2014). Specifically, Lim et al. (2014) and Dietz et al. (2003) developed a scale on FSE based upon global mastery scale originally proposed by Pearlin and Schooler (1978). At a societal level, this link between FL and self-efficacy is associated with differential gender distribution across different subject-areas during their years of study (Henderson et al., 2018) – does younger women's lower propensity to pursue education in STEM subjects reduce their self-efficacy regarding financial decision-making?

Existing literature also suggests a positive association among FL and FCB (Bamforth et al., 2018; Sohn et al., 2012). 'Coping behaviours' refer to "cognitive and behavioural efforts made to master, tolerate, and reduce external and internal demands, and conflicts among them" [Folkman and Lazarus, (1980), p.223]. When individuals confront financial stress, they make cognitive and behavioural efforts to deal with these problems. Different forms of coping behaviours are recognised in personal finance research for instance: active and passive coping behaviour (Cohen et al., 2008) or proactive versus preventive coping behaviours (Xiao et al., 2009). Individuals who engage in financial coping behaviours proactively generally conserve money to manage their future financial wants as well as addressing financial emergencies. However, individuals who practice preventive financial coping behaviours, engage in regular budgeting, maintaining a detailed record of their money, and spending within the budgeted amounts. Therefore, from a gendered perspective in certain contexts where women are primarily responsible for household responsibilities, their likelihood to display preventive coping behaviours by managing the household budget is higher while their male partners responsible for financial decision-making may be engaging in more proactive coping behaviours. Overall, individuals with higher FL have improved financial wellbeing (for example, by planning for their retirement), and are more likely to set aside money for saving (i.e., financial coping behaviour) (de Bassa Scheresberg, 2013). Similarly, some recent studies (e.g., Nițoi et al., 2022; Khan and Surisetti, 2022) also found significant association between FL and financial wellbeing and related financial (coping) behaviours. In the context of Saudi Arabia, Alshebami and Aldhyani (2022), Saber (2020) and Shehata et al. (2021) examined the association between FL, saving behaviour, financial wellbeing and other financial behaviours among different segments of respondents in Saudi Arabia. Based on this scholarly discourse, we propose the following hypotheses:

H1a FL and FWB are positively related.

H1b FL is positively associated with FSW.

H1c FL is positively associated with FCB.

2.2 Financial socialisation, FSE and FWB

Socialisation theory (Moschis, 1987) suggests that people learn different skills by interacting with other members of their social network. Financial socialisation involves learning and developing skills which improve one's financial wellbeing (Danes, 1994). Children experience financial socialisation when parents allow them to pay their own bills, encourage them to save and spend their own money. Agents in children's financial socialisation process include parents, relatives, friends, teachers, media and the school (Pinto et al., 2005). However, referring to the parental influence, they hold that financial communication from parents reduces young peoples' financial difficulties. LeBaron et al. (2018) describe the financial socialisation process and outcomes by integrating personal and household characteristics with family communications, relationships, and deliberate financial socialisation as antecedents of improvements in financial attitudes, knowledge, and capabilities, as well as financial wellbeing. Their study reviewed 100 interdisciplinary articles on family socialisation theory and financial socialisation and holds that financial socialisation has a significant bearing upon FCB and FWB.

Several recent studies, for instance, Drever et al. (2015), Lanz et al. (2020) and Pandey et al. (2020), find that conversations with parents about financial matters are a strong socialisation factor and a predictor of the development of financial wellbeing. There has been a lot of research that has investigated associations among financial socialisation, FWB, FSE and FCBs. For instance, Serido et al. (2010) holds that financial socialisation by the teachers, parents, friends, and other people play significant role in enhancing children's psychological, personal, and financial wellbeing, as well as their FSE, and their FCBs. Similarly, Sohn et al. (2012) also noted financial socialisation agents important in developing money management skills and shaping financial behaviours among individuals. We propose below hypotheses based on above theoretical arguments:

H2a Financial socialisation and FWB are positively related.

H2b Financial socialisation and FSE are positively related.

H2c Financial socialisation and FCBs are positively related.

2.3 Demographic characteristics, FSE and FWB

Demographic characteristics are also used as independent variable in this research, specifically how the income and education of the women, as well as their father/mother's education impacted women's financial wellbeing, self-efficacy, and coping behaviours. We assumed that those with higher formal education exhibit better understanding about financial affairs (Shim et al., 2009). Similarly, women with high income engage in more spending, saving, and investment of their earnings. Finally, parental education is also instrumental in training children within the household and positively impact their financial self-efficacy, coping behaviours and wellbeing in the long run. While some previous studies have highlighted this positive relationship among socio-demographic constructs and financial behaviours, although there exists inconclusive evidence available in the literature. For example, Taylor et al. (2011) showcase that the capability for managing income is relatively crucial than the extent of income itself while defining psychological and material (financial) wellbeing. We propose below hypotheses based on the above discussion:

H3a Demographic characteristics (i.e., income, education, father education, mother education) have positive impact on financial wellbeing.

H3b Demographic characteristics (i.e., income, education, father education, mother education) are positively related to financial self-efficacy.

H3c Demographic characteristics (i.e., income, education, father education, mother education) are positively related financial coping behaviour.

2.4 FSE and FCBs

As discussed above, FSE is an individual's ability and confidence in making sound financial decisions. FSE is an important antecedent of FCBs. People with higher FSE can use this confidence in yielding better proactive FCBs. Existing literature also suggests a positive link between FSE and FCBs. For instance, Chong et al. (2021), Dietz et al. (2003), Farrell et al. (2016), Lim et al. (2014) and Nisa and Haryono (2022) holds that FL empower individuals to develop better coping behaviours and make better use of their finances to yield more productivity through coping behaviours (proactive and preventive financial behaviours). We, therefore, offer below hypothesis, based on above discussion:

H4 FSE and FCBs are positively associated.

2.5 FSE and FWB

Several scholars found significantly positive relationship between FSE and FWB (whether subjective or objective). For example, Chong et al. (2021), Dietz et al. (2003) and Lim et al. (2014) hold that FSE leads to improved FWB. Similarly, Farrell et al. (2016) examined association between both the constructs through improvement in financial coping behaviours such as savings and more investment and a reduced financial debt. In important research, Fosnacht and Calderone (2017) noted that FSE improves individual's ability and confidence to plan their finances to improve their financial wellbeing. Some recent studies (e.g., Naveed et al., 2021; Zia-ur-Rehman et al., 2021) found significantly positive effect of financial self-efficacy in improving financial wellbeing. Based on above theoretical discussion, the following hypothesis is proposed:

H5 Higher levels of FSE leads to improvement in FWB.

2.6 FCBs and FWB

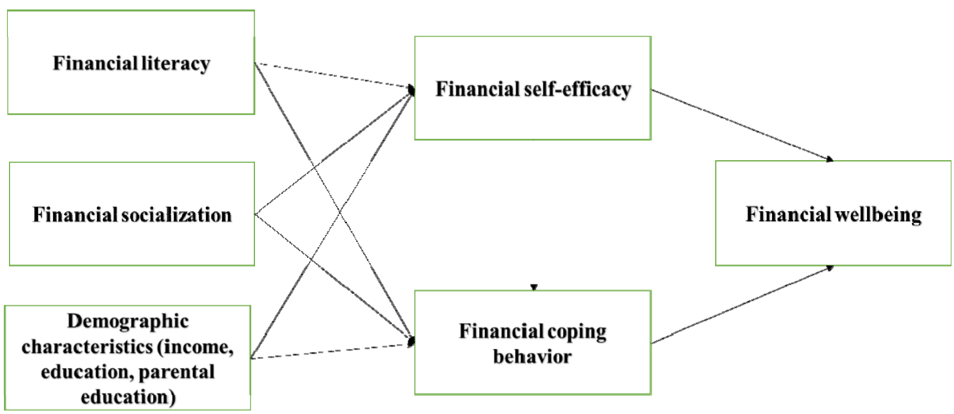
The role of parents is crucial for training their children to deal with different challenges in life and how to manage life's numerous needs (Ali et al., 2019; Shim et al., 2010). Financial coping behaviours practiced and taught by parents contribute positively in shaping financial management behaviour exhibited by the children. FCBs, including both preventive and proactive behaviours, have an impact on the objective and subjective financial wellbeing of individuals. Individuals who practice preventive and proactive financial coping behaviours enjoy better financial wellbeing, both objectively and subjectively (Cohen et al., 2008; Gan et al., 2007; Serido et al., 2010, 2014; Shim et al., 2010). Numerous studies use financial coping behaviours to predict financial wellbeing among individuals and families (Gan et al., 2007; Serido et al., 2010; Xiao et al., 2009). This study therefore assumes that proactive and reactive financial coping behaviours lead to improvements in individuals' objective and subjective financial wellbeing, and therefore proposes below hypothesis:

H6 FCBs and FWB are significantly and positively related.

2.7 Theoretical model

Figure 1 contains our theoretical model, the independent constructs include FL, financial socialisation, and demographic characteristics (income, education and parental education). We propose these variables have a significantly positive impact in improving FSE, FCBs and FWB.

Figure 1 Conceptual model (see online version for colours)



2.8 Women in Saudi Arabia – the socio-institutional context

Feminist scholars studying the Arab context have highlighted a complicated gender terrain whereby a range of interacting political, cultural, and religious forces enable both structural and symbolic gendering (Afiouni and Karam, 2019; Koburtay et al., 2020). The story is no different in Saudi Arabia. On the one hand, the Saudi Government has implemented many public policy reforms aimed at (re)balancing gender norms. For example, attempts to increase female labour force participation, 'feminisation' of vacations and sectors that were earlier not open to women, culmination the restrictions on women driving, and alteration in the guardianship laws so women have greater freedom to make choices in the absence of endorsement from a male guardian and so on (Khan, 2018; *Arab News*, 2019; Al Arabiya, 2020). All these reforms highlight a state-led modernity project that aims to improved access to resources and opportunities for women. This in turn creates a positive impetus for women to both acquire financial knowledge as well as have greater freedom in enacting financial decisions.

However, there is also evidence that suggest that male hegemony continues to manifest itself in both implicit and explicit ways. For example, there is widespread gender discrimination (Afiouni, 2014; Metcalfe, 2008) such as a gendered educational system that limits women to specific subjects and specific professions (Alfarran et al., 2018). The World Economic Forum's various indices for many Arab countries also serve to highlight the continued impact of patriarchal structures in this part of the world – whereby 'female citizens are clearly underprivileged compared to their male counterparts on variety of indicators such as "economic opportunities, education, political participation, and health/survival" [Afiouni and Karam, (2019), p.74]. Furthermore, women's choices and decision-making freedom are heavily circumscribed by more implicit patriarchal norms within their family unit as well as in society, such as women being discouraged to work by their families (Afiouni and Karam, 2019) or not being seen as the primary breadwinners (Elamin and Omair, 2010). These countervailing forces which continue to consign women to private domains, and to the role of housewives/caretakers, are likely to negatively impact access to financial information and restrict women's freedom to make financial decisions without the intervention of (male) family members.

3 Methodology

3.1 Research philosophy

The current study used positivism as a research philosophy, which has been quite desirably used for scientific research in the social sciences. The standard of positivism includes clarity of language to define the constructs used for the investigation, and validation of findings through logic and empirical analysis (Wray, 2011). Epistemologically, this study follows a positivist approach which suggests hypotheses are developed based on a pre-defined theory and tested against quantitative data and empirical findings. The proved hypotheses allow verification or falsification and seek generalisable results (Guba and Lincoln, 1994). In this study, to test the hypothetic-deductive theory, a value-free position is taken and a quantitative method – survey – a positivist instrument which is an objective measurement to collect quantitative observations is employed. Thus, the aim of this study is to formulate several hypotheses based on positivism as this study pursues to describe and predict the phenomenon via empirically testing the hypothesis (Saunders et al., 2019).

3.2 Sample and data

This research aims to investigate FL levels among Saudi women, specifically how they are managing their finances, and highlight the potential association between FL and broader socio-economic life. Structured questionnaires were used in survey to collect data from Saudi women from numerous cities of Saudi Arabia. Respondents from diverse socio-economic backgrounds are included in the sample to enhance generalisability of results. A total of 1,338 filled survey questionnaires were returned out of which 27 were incomplete and hence not processed further. Data analysis was conducted based on the final sample of 1,338 usable responses.

3.3 Instruments

The instrument to measure FL was adopted from OECD INFE (2011). The questionnaire contained items related to budget, financial decision-making, and the basic FL of the households/respondents. The FL scale consisted of questions related to basic financial and numeric calculations for instance interest rates and inflation rates as well as the ability to interpret changes in these rates. It also assessed whether the respondents were aware of basic financial products, the concept of financial risk and other related concepts.

Questions related to demographic profile were also adopted from OECD INFE (2011), with some modifications to accommodate the diverse socio-cultural Saudi contexts. The questions related to demographic profile included age, education, income, spouse/parent's education and income, marital status, family structure, number of dependents, and earning members, profession, sources and nature of income. The main objective of collecting comprehensive demographic information was to examine how and to what extent did respondents' FL and financial empowerment differ across diverse demographic profiles.

3.4 Data analysis

The PLS-path modelling using SmartPLS 3.0 software (Ringle et al., 2015) was applied to gauge association among the subject constructs (Hair et al., 2021; Henseler et al., 2015; Sarstedt et al., 2016). It is widely viewed as an appropriate statistical technique and has been applied extensively in behavioural research (Ali, 2021; Ali et al., 2019, 2022a, 2022b; Algarni et al., 2022; Badghish et al., 2022; Wang et al., 2021) as well as extant entrepreneurship research (Ali et al., 2019; Manley et al., 2021). Following previous studies (Ali et al., 2019; Wang et al., 2021; Jeong et al., 2019), alongside more recent recommendations by Manley et al. (2021), this study employed used PLS-path modelling approach as a convenient statistical approach to interpret the results of auxiliary and structural models of FWB. More specifically, PLS-path modelling seeks to analyse dynamics of the measurement model (examining association among each variable with respect to its items) as well as the structural model (examining association among subject constructs).

4 Results

4.1 Measurement model assessment

The study used updated procedures suggested by Hair et al. (2021) and Manley et al. (2021). Item reliability has been assessed through analysing the standardised factor loading. The standardised factor loading of an item having significant ≥ 0.70 (Hair et al., 2021), or ≥ 0.50, in exploratory research is deemed acceptable (Nunnally, 1978). The values of standardised factor loadings relevant statistics are contained in Table 1. Items – FWB2, FWB5 and FWB8 from financial wellbeing and FWB2, FWB5, and FWB8 from financial wellbeing are deleted from final analysis because of factor loadings < 0.50 (Hair et al., 2021). For all other items, the values of standardised factor loading were > 0.50

with their respective significant t-values, suggesting sufficient reliability. Secondly, the construct reliability is manifested through α, ρ_A and CR values. CR value in the range of Z≥ 0.70 and ≤ 0.90 is considered acceptable. As could be seen in Table 1, statistics referring to the three indicators of construct reliability (α, ρ_A and CR) were in acceptable range 0.70 and 0.90), suggesting sufficient reliability for all constructs. Third, the convergent validity has been assessed through average variance extracted (AVE) scores. An index of ≥ 0.50 is deemed acceptable as minimum threshold (Fornell and Larcker, 1981). The indices of AVE of all constructs were > 0.50, suggesting the confirmation of convergent validity of all constructs.

Finally, the discriminant validity has been assessed through examining (1) Fornell-Larcker criterion and (HTMT) values. Accordingly, to F-L criterion, discriminant validity in the research model is confirmed when square root of AVE of each variable is more than their inter-correlations. The HTMT values of all constructs being ≥ 0.85 also reflected sufficient discriminant validity.

4.2 Structural model assessment

Following the recent recommendations in extant studies (Hair et al., 2021; Manley et al., 2021), we applied bootstrapping technique in SmartPLS 3.0 software to examine the structural model in the following ways. First, multicollinearity was examined to assess possible biasness through variance inflation factor (VIF). Table 2 shows that values of VIF were > 3.00, suggesting no such biasness (Hair et al., 2021). Predicative capability was analysed through examining R^2 coefficient values of all dependent constructs. Table 3 contains these values as: $R^2_{(FSE)} = 4\%, R^2_{(FCBs)} = 24\%$ and $R^2_{(FWB)} = 38\%$. Furthermore, Q^2 value – obtained through blindfolding technique has also been used to augment this predictive capability. Accordingly, the predictive relevance Q^2 values were well above zero [the threshold suggested by Hair et al. (2021)] – see Table 3.

The hypotheses and their relevancy were assessed applying the bootstrapping technique (1,338 responses, with 5,000 bootstrapped sub-samples using no sign change option). Significance of the individual path coefficients was confirmed through *t*-values with one-tailed test (Roldán and Sánchez-Franco, 2012) and 95% BCa suggested by Hair et al. (2021). According to empirical results, the FL had significant positive impact upon FWB ($\beta = 0.15$, $p < 0.05$), FSE ($\beta = 0.13$, $p < 0.01$) and FCBs ($\beta = 0.35$, $p < 0.01$) supporting H1a–H1c. Financial socialisation exhibited significantly positive effect on FWB ($\beta = 0.10$, $p < 0.05$), FSE ($\beta = 0.19$, $p < 0.01$), and FCBs ($\beta = 0.20$, $p < 0.01$), supporting H2a–H2c. However, none of the demographic characteristics (income, education, father education and mother education) significantly affected FWB, thus H3a is not accepted. In terms of H3b and H3c, all the demographic characteristics except income had a significant positive effect on FSE and FCBs; thus, H3b and H3c were partially supported. FSE was also found to be significantly positively associated with FCBs ($\beta = 0.11$, $p < 0.01$); supporting H4. FSE (H5) and FCBs (H5) exhibited a significantly positive impact on FWB; thus, H5 and H6 were also supported.

Table 1 Quality of the measurement scales

Construct	*Code*	*Loading*[a]	*SE*	*t-value*	α	ρ_A	*CR*	*AVE*[b]
Financial literacy					0.80	0.80	0.89	0.83
	FL1	0.85	0.01	77.72				
	FL2	0.79	0.02	44.14				
	FL3	0.85	0.01	72.83				
	FL4	0.83	0.01	63.49				
Financial socialisation					0.78	0.78	0.84	0.50
	FS1	0.69	0.02	29.18				
	FS2	0.68	0.02	34.84				
	FS3	0.57	0.03	19.17				
	FS4	0.66	0.02	26.99				
	FS5	0.76	0.02	40.14				
	FS6	0.77	0.02	43.38				
Financial self-efficacy					0.78	0.80	0.85	0.50
	FSE1	0.59	0.03	20.64				
	FSE2	0.73	0.02	40.41				
	FSE3	0.57	0.03	19.10				
	FSE4	0.78	0.01	52.84				
	FSE5	0.75	0.02	45.76				
	FSE6	0.71	0.02	37.34				
Financial coping behaviour					0.83	0.84	0.87	0.54
	FCB1	0.74	0.02	42.88				
	FCB2	0.60	0.03	22.55				
	FCB3	0.72	0.02	37.57				
	FCB4	0.83	0.01	75.08				
	FCB5	0.81	0.01	70.71				
	FCB6	0.67	0.02	33.96				
Financial wellbeing					0.82	0.82	0.86	0.50
	FWB1	0.53	0.05	11.14				
	FWB3	0.85	0.02	53.65				
	FWB4	0.85	0.01	57.78				
	FWB6	0.68	0.03	21.45				
	FWB7	0.60	0.02	28.65				
	FWB9	0.71	0.02	45.75				
	FWB10	0.66	0.02	29.87				

Notes: [a]All loadings are significant at $p < 0.001$ – (based on $t_{(4999)}$, two-tailed test), SE = standard error, α = Cronbach's alpha, CR = composite reliability, ρ_A = Dijstra-Henseler's rho and AVE = average variance extracted.
[b]Percentage of variance of item explained by the construct.

Table 2 Assessment of discriminant validity

		Mean	*SD*	*VIF*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Financial literacy	NA	NA	1.28	*0.90*	0.27	0.05	0.13	0.05	0.04	0.13	0.51	0.37
2	Financial socialisation	2.76	0.84	1.13	0.23**	*0.71*	0.04	0.08	0.05	0.1	0.21	0.33	0.29
3	Income	1.86	1.21	1.16	0.05	0.00	*1.00*	0.32	0.2	0.11	0.06	0.02	0.16
4	Education	3.77	0.75	1.17	0.12**	0.07*	0.32**	*1.00*	0.22	0.18	0.05	0.13	0.14
5	Father education	2.84	1.16	1.74	0.05	0.03	0.20**	0.22**	*1.00*	0.63	0.04	0.08	0.09
6	Mother education	2.45	1.13	1.70	0.04	0.09**	0.11**	0.18**	0.63**	*1.00*	0.04	0.09	0.1
7	Financial self-efficacy	3.29	0.93	1.42	0.08**	0.16**	0.05	0.05	0.00	0.00	*0.71*	0.14	0.65
8	Financial coping behaviour	3.26	0.91	1.32	0.43**	0.27**	0.01	0.12**	0.08**	0.07**	0.11**	*0.73*	0.48
9	Financial wellbeing	3.19	0.59	1.66	0.31**	0.03	0.14**	0.12**	0.08**	0.09**	0.51**	0.40**	*0.71*

Notes: Correlation coefficient are significant at 5% level of significance.
The AVE value is not meaningful criterion for single-item measures.
Diagonal italicised scores correspond to square roots of AVE.
Beneath diagonal are correlations, above are HTMT scores.

Table 3 Determination coefficients (R^2) and predictive relevance (Q^2) of endogenous constructs

Constructs	*R^2 values*	*Threshold*	*Q^2 values*	*Threshold*
FSE	0.04	≥ 0.33 (moderate)	0.02	> 0
FCBs	0.24	≥ 0.67 (substantial)	0.12	
FWB	0.38	≥ 0.33 (moderate)	0.12	

Table 4 Assessment of the structural model

Structural path	*Standardised path coefficient*	*t-value*	*Significant difference ($p < 0.05$)*	*95% BCa confidence interval*		*Conclusion*
				Low	*High*	
FL → FWB	0.15*	1.77	Yes	0.09	0.19	H1a; supported
FL → FSE	0.13***	4.03	Yes	0.06	0.17	H1b; supported
FL → FCBs	0.35***	12.69	Yes	0.33	0.42	H1c; supported
FS → FWB	0.10*	2.00	Yes	0.02	0.13	H2a; supported
FS → FSE	0.19***	6.36	Yes	0.14	0.24	H2b; supported
FS → FCBs	0.20***	7.75	Yes	0.15	0.23	H2c; supported
Income → FWB	0.04^{ns}	0.67	No	–0.06	0.16	H3a; rejected
Education → FWB	0.01^{ns}	0.33	No	–0.03	0.05	
Father education → FWB	0.01^{ns}	0.49	No	–0.04	0.06	
Mother education → FWB	0.06^{ns}	1.47	No	–0.03	0.11	
Income → FSE	0.04^{ns}	1.22	No	0.13	0.27	H3b; partially supported
Education → FSE	0.03**	3.00	Yes	0.01	0.05	
Father education → FSE	0.05**	2.50	Yes	0.02	0.08	
Mother education → FSE	0.07*	2.31	Yes	0.02	0.12	
Income → FCBs	0.05^{ns}	1.25	No	0.08	0.22	H3c; partially supported
Education → FCBs	0.06*	2.00	Yes	0.02	0.10	
Father education → FCBs	0.06*	1.75	Yes	0.00	0.10	
Mother education → FCBs	0.05*	1.67	Yes	0.00	0.10	
FSE → FCBs	0.11***	4.23	Yes	0.07	0.15	H4; supported
FSE → FWB	0.47***	3.30	Yes	0.41	0.52	H5; supported
FCBs → FWB	0.35**	2.72	Yes	0.27	0.41	H6; supported

Notes: ns = non-supported.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, based on t(4,999), one-tailed test.
BCa = bias corrected confidence interval. Bootstrapping based on n = 5,000 subsamples.

5 Discussion and conclusions

Besides investing the extent of FL of Saudi women, this study seeks to examine its impact together with financial socialisation, and demographic characteristics (including income, education and parental education) in improving their FSE, FCBs and FWB. It has been found that FL positively impacted FSE, FCBs and the FWB. Similar effects have been demonstrated by the financial socialisation. Similarly, demographics characteristics including the female respondents' education, and their mother and father's education are also significantly positively related with the three outcome constructs. However, the impact of respondent's income on the three outcome constructs could not be substantiated empirically. Likewise, a positive association has been found between FSE, FCBs and the FWB.

Most of the hypotheses proposed in this research were accepted except the role of income levels in enhancing FSE, FCBs and the FWB. This highlights two contextually unique explanations. First, given Saudi Arabia's patriarchal context whereby women shoulder a greater burden of household management, this role (rather than their own income level) may be indirectly enhancing their general financial management skills and subsequently improving their FL specifically with respect to the knowledge dimension. Second, the male breadwinner model (in line with Islamic principles of the male financially supporting the household) continues to be prevalent in Saudi Arabia. Therefore, women's income may be secondary with respect to both the household as well as their individual financial wellbeing; with subsequently limited effect on their FSE and FCBs. However, at a broader societal level good financial management skill (irrespective of income earned) still may improve FL and subsequently encourage women to save and investment money in better ways and thereby improve their financial wellbeing.

The results are consistent with numerous studies reported in the literature. For example, we found significant positive association between FL, FSE, FCBs and FSW which is consistent with work performed by numerous scholars like Bamforth et al. (2018), Philippas and Avdoulas (2020) and Sohn et al. (2012) superior FL yields better consequences, e.g., better retirement planning (FWB) better saving behaviour (FCBs), etc. Similarly, Drever et al. (2015); Lanz et al. (2020) and Pandey et al. (2020), attested to a stronger impact of financial socialisation on FWB. Lastly, Serido et al. (2010) showed how financial socialisation anchors children's in developing psychological, personal, and financial wellbeing, as well as higher FSE and superior FCBs. The findings of this study are also in line with research evidence provided by Alshebami and Aldhyani (2022). Saber (2020) and Shehata et al. (2021) who found lack of overall FL among different segment of respondents in Saudi Arabia, and particularly low level of financial knowledge among Saudi women, causing a significant impact on their financial (coping) behaviours and financial wellbeing.

5.1 Implications for theory and practice

The study contributes significantly to advancing contemporary debate on women entrepreneurship by conceptualising and empirically substantiating the cause-and-effect relationships among constructs such as FL, financial socialisation, FSE, FCBs and FWB. More importantly, the study considered the FL of women in Saudi Arabia – a distinctive socio-institutional context that remains under-researched. Studying this unique context offered some unique contributions at the public policy level. The range of public policy interventions introduced by the Saudi Government in recent times, broadly aimed at female emancipation, signals a state-led modernity project, such as Riyali program (*Arab News*, 2021). These interventions, by improving Saudi women's access to both education as well as employment, directly improve women's socio-economic participation at a societal level. Crucially, for our purposes, they also improve women's FL by exposing women's to greater financial knowledge, products, and services, and generating income that needs to be financially managed; subsequently improving financial coping behaviour and financial wellbeing. However, this state-led modernisation may be a case of symbolic gendering given much slower change of socio-cultural norms such as the male breadwinner model and family/tribal pressures on women (Ali et al., 2021; Elamin and Omair, 2010); whereby demographic characteristics across a diverse range of profiles from across the country did not affect women's financial wellbeing.

Interestingly, our findings also make two unintended contributions to modernisation theory (Schmidt, 2010). First, we posit that the Saudi Government's state-level policies may help affect some degree of social mobilisation, gender emancipation and equality, and over time create entirely 'new patterns of socialisation and behaviour' [Eisenstadt, (1974), p.228]. Therefore, FL and financial socialisation positively impacting women's financial wellbeing signals a piecemeal process of modernisation. Second, contextualised research like our paper underscores how the intersections of gender, culture, religion, and modernity are indeed possible, and modernity is not entirely at odds with the more entrenched religious and cultural institutions (Khurshid, 2015). This continuous interplay of state-led modernity and socio-cultural entrenchment, and the still positive effect of FL on FSE, FCBs and FWB highlight a very context-specific narrative that is especially relevant for large swathes of the relatively under-studied Global South (Bindabel and Salim, 2021) that is still very much in the throes of modernisation. The findings of this study particularly become more important due to recent economic crises and increasing cost of living that make it even more difficult for Saudi people (especially women) to ensure their financial wellbeing. The study provides important implications to the policy makers in their quest to increase FL, financial socialisation, financial coping behaviour among Saudi women to improve their financial and overall wellbeing. Although there are some financial training programs available in the Kingdom, but they are mainly for young students and at a relatively small-scale. They need to be expanded in inclusivity and rigour.

5.2 Limitations and directions for future research

Like many other, this research also suffers from some limitations. First, the results are established on self-reported data, only. Second, the findings of this study are specific to Saudi context and may not be generalised to other societies. The study uses crosses-sectional data, we therefore, propose that future studies can apply longitudinal research design to address the shortcomings of this research and offer more robust results. We also propose that some impact assessment research should be conducted to strengthen the argument on the role of FL interventions undertaken by Saudi Government in improving financial wellbeing among Saudi women. Some other variables can also be considered to help understand how to boost financial wellbeing among women in Saudi Arabia.

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