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Relationship between Subjective Financial Knowledge and Financial Well-Being: The Mediating Role of the Financial Executive Function

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Abstract

This research aimed to examine the mediating role of financial executive function in the relationship between subjective financial knowledge or self-confidence in one's financial knowledge and financial well-being. A quantitative design was used, with a descriptive and correlational scope. The scales of subjective financial knowledge, financial well-being and financial executive function was applied to 554 university students from Temuco, Chile. The results show that subjective financial knowledge has an indirect effect on the financial control dimension of Financial Well-being, mediated by organization and planning of the executive function scale. Likewise, it was found that subjective financial knowledge had an indirect effect on the dimension of having financial stress through the planning dimension of the executive function scale. It is concluded that it is important to strengthen organization and planning to improve financial well-being, which could be done from an intervention based on financial literacy.

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Keywords: subjective financial knowledge, financial wellness, financial executive function, university students.

Introduction

In recent decades, global economic changes have strongly impacted Latin American societies, and Chilean society in particular, modifying the relationship that citizens have with the consumption of products and services. Consumption has become a coordinating practice of the process of identity construction and in the way people relate to the market (Castellanos *et al.*, 2020)

As a result of the model, a positive attitude towards indebtedness has been promoted, which has allowed greater economic development linked to an increase in the consumption of goods and services, but has increased the risk of financial operations, especially in populations that are more vulnerable than lack their own permanent and financial income education, like university students, thereby affecting their financial well-being (Denegri *et al.*, 2009; Duque *et al.*, 2016).

In the case of university students, their financial decisions have demonstrated an impact on their academic performance and future decisions as well as on their overall well-being, this situation is particularly dramatic among students in developing countries (Akthar *et al.*, 2021; Yong *et al.*,2018).

This study aims to examine whether there is a mediating effect of the financial executive function (FEF) in the relation between subjective financial knowledge (SFK) and financial well-being (FWB) in its dimensions of control and stress. (FWB). The specific hypotheses of the study are:

H1. SFK and the subscale Financial Control will correlate directly.

H2. SFK will inversely correlate with the subscale financial stress.

H3. The subscales of FEF, Impulse Control (FIC), Organization (O), Planning (P) and Motivation to Spend (MS) will mediate the effect of SFK on the subscale Control of FWB.

H4. The subscales of FEF, Impulse Control (FCI), Organization (O), Planning (P) and Motivation to Spend (MS) will mediate the effect of SFK on the FWB subscale Stress.

Literature Review

Financial difficulties can lead to a variety of individual and social negative effects, including poverty and social exclusion (D'Alessio & Iezzi 2013), reduction in economic well-being (Wałęga & Wałęga 2021), and problematic behaviors of alcohol, tobacco and drug use (Ángel, 2016). The literature shows the negative impact of financial difficulties on emotional health and psychological well-being

(Białowolski *et al.*, 2019; Tay *et al.*, 2017), and it is related to depression and suicidal thoughts (Białowolski *et al.*, 2019).

Although there are several theoretical and empirical approaches to explore the variables associated with the personal and family financial situation, these can generally be classified from a perspective emphasizing the negative components such as financial difficulties, stress, and financial vulnerability or fragility (Akhtar *et al.*, 2020; Anderloni *et al.*, 2012). It is also possible to examine them from a more positive perspective that assesses financial well-being, self-confidence in one's knowledge and financial skills and those underlying variables that mediate among these factors (Białowolski & Węziak-Białowolska, 2014; Brüggen *et al.* 2017). Then, it is relevant to consider financial behavior as a tool to achieve a development that provides a secure, good-quality life (VanderWeele 2017; Weziak-Bialowolska *et al.*, 2019). In the case of young people, special attention must be paid to the financial indicators responsible for long-term well-being and prosperity. At this point in the life cycle, a more comprehensive measurement is required that gives account of the financial skills that permit a more efficient management and administration of personal finances (Brunetti *et al.* 2012). Thus, financial literacy and its components of objective and subjective knowledge (Hoelzl & Kepteyn, 2011), the ability to exercise financial control and the cognitive skills are highly relevant. Furthermore, Atkinson *et al.* (2012) indicate that financial control, supervision and organization of financial aspects, and planning for the future are linked to self-confidence in one's financial skills and knowledge. These is related with cognitive variables like executive function (Spinella *et al.*, 2014) that have a strong relation to the perception of subjective financial well-being.

Financial knowledge refers the set of knowledge that people manage in relation to the concepts and procedures linked to personal finances (Lind *et al.*, 2020). This can be assessed objectively, using questions based on the knowledge, and subjectively, making the people themselves describe their level of financial knowledge. Thus, some studies indicate that objective financial knowledge it is positively associated with some specific financial behaviors, such as retirement planning (Lusardi & Mitchell, 2017), investment in the stock market (Van Rooij *et al.*, 2011), and emergency fund planning (Babiarz & Robb 2014).

By contrast, subjective financial knowledge (SFK), also called confidence in one's ability to manage financial concepts, has proven to be an important driver of behavior and adequate decision-making in a variety of financial settings (Lind *et al.*, 2020; Farrell *et al.*, 2016; Robb *et al.*, 2015, Lusardi & Mitchell, 2017). Also, Anderson *et al.* (2017) found that subjective financial knowledge was a better predictor of saving behavior than objective financial knowledge.

On the other hand, Allgood and Walstad (2013) found that subjective financial knowledge, by reflecting self-confidence in financial skills, predicts the implementation of more efficient practices in credit card use. One possible explanatory mechanism is provided by Barrafrem *et al.* (2020), who report that people with high financial confidence could be more inclined to seek more reliable information to avoid making impulsive or dubious decisions, which could affect behavior.

Although the main purpose of most financial education programs is to promote solid financial behavior, it is observed that an equally important objective is to contribute to people's financial well-being (FWB) (Lusardi *et al.*, 2016). Moreover, satisfaction with one's financial life (FWB) has been shown to be an important component of overall satisfaction with life (Diener *et al.*, 2010; Hojman *et al.*, 2016; Woodyard & Robb, 2016).

Subjective financial well-being is defined as (a) a feeling of security and control over one's financial situation, and (b) the lack of negative emotions (anxiety and worry) caused by financial issues (Lind *et al.*, 2020). In the present study, the measurement of two facets of financial well-being is used: financial control and financial stress. The financial control dimension is conceptualized as an aspect of the locus of control, in this case focused on the financial, and is defined as the perception of personal control over financial matters, adding an additional dimension to the traditional concept of locus of control by incorporating a person's generalized attitudes, beliefs or expectations regarding the nature of the causal relationship between their financial behavior and its consequences (Cobb-Clark *et al.*, 2016). Then, the evidence indicates that individual differences in self-control influence financial and economic behavior and therefore overall financial well-being (Strömbäck *et al.*, 2017). Those people who feel in control of their finances administer them more carefully, they get into debt less and they save more (Bialowolski *et al.*, 2021; Białowolski *et al.*, 2020; Cobb-Clark *et al.*, 2016). Thus, financial stress is defined as the perception that financial obligations exceed the resources available to deal with them (Gurung, 2013). In young people and adults, it has been observed that higher levels of financial stress are associated with greater depression, family anxiety, academic anxiety, general anxiety and a lower grade average (Afzali *et al.*,2020; Cadarett &Bennett, 2019; Guan *et al.*, 2022).

In one other hand, several studies have reported that subjective financial knowledge has a more intense positive association with financial well-being than objective financial knowledge (Lind *et al.*, 2020; Xiao & Porto, 2017; Xiao *et al.*, 2014).

Once the background on the relationship between perceived financial knowledge and financial well-being has been reviewed, it is proposed that cognitive processes could be mediating the relationship between subjective financial knowledge or self-confidence and financial well-being. In this respect, some evidence orients the mediating role of the executive functions, specifically the financial executive functions (Spinella *et al.*, 2014).

The executive functions (EF) were initially described by Luria (1973) as regulators of human behavior and composed of a set of cognitive abilities of planning, programming, regulation and verification of intentional behavior, having an important role in effective decision-making, delayed gratification, behavioral control and behavioral regulation (Séguin & Zelazo, 2005), among others.

The executive functions are also applicable to the management of personal finances, including financial planning (for example, savings and retirement plans), organization of expenses and income (Spinella *et al.*, 2014). Thus, the specific executive functions linked to the management of personal finances include impulse control (FIC), organization (O), planning (P) and motivation (MD) and have proven to be correlated with income, credit card debt and investments, as well as with compulsive buying and attitudes to money (Spinella *et al.*, 2014). Other studies indicate that a deficient functioning of the EF, especially impulse control (Strömbäck *et al.*, 2017) and the ability to inhibit them (Corgnet *et al.*, 2015) makes decision-making about buying in situations of financial risk difficult (Derbyshire *et al.*, 2014).

Cao and Liu (2017) found in young adults that an adequate development of financial executive functions influences the preference for sources of expert consultation and is positively related to high financial planning; by contrast, the preference to consult on social media or do online searches is related positively to the lace of impulse control. Moreover, in a study with university students Yang and Lester (2016) associated high scores on the subscales motivation, planning and organization with maintaining savings accounts and bank deposit certificates and with saving for a future retirement.

Although in Chile there are studies that address economic socialization, consumption behavior, saving, indebtedness and their underlying variables in childhood, adolescence and in university students (Denegri *et al.*, 2018), there is a lack of studies that consider the relation between subjective financial knowledge and financial well-being and that incorporate the mediating role of underlying cognitive processes as is the case of financial executive functions.

Methodology

Research Sample

A non-probability purposive sample was used, comprised of 554 students from different universities in Temuco, Chile, with an average age of 23.6 years (SD = 5.85); 62.2% were women. In terms of socioeconomic level, 14.9% were low, 31.3% middle-low, 45.5% middle, 7% middle-high 1.3% high.

Design

The design of this study is quantitative, non-experimental, cross-sectional in nature, with a descriptive and correlational scope (Hernández *et al.*, 2014).

Data collection

Before beginning the data collection, this project was subjected to review and approval by the Scientific Ethics Committee of the Universidad de La Frontera. Once this approval was obtained and since Chile was in a period of pandemic with in-person classes suspended, it was necessary to collect the data online. For this, we asked corresponding authorities of each university to request their authorization to conduct the study and to have access to the student email databases to invite them to participate in the study. Participants were informed of the study objectives and ethical safeguards; the instrument begins with an informed consent that the participant must approve to be able to enter the survey. People did not receive any direct economic compensation for their participation in the study.

Instruments

A questionnaire was applied, made up of several instruments to ascertain the sociodemographic characteristics of the sample and different aspects of the participants' financial behavior. Due to the pandemic COVID-19, the instrument was designed in an online format using the Question Pro software.

Personal Identification Questionnaire: This was included to know the gender, school of origin and age of the participants. It includes writing and selection response formats.

Subjective Financial Knowledge or Self-confidence in Financial Knowledge (SFK) Scale (Lusardi & Mitchell, 2017). This consists of a brief self-assessment of confidence in one's knowledge from the question, How do you evaluate your current financial knowledge? For the answer, participants are asked to score their financial knowledge on a scale from 1 to 7 (1 very low and 7 very high).

Executive Personal Finance Scale (EPFS) (Spinella *et al.*, 2007). It measures the executive functions related to financial management on a 5-point Likert scale. It has four subscales: Impulse control (6 items), Organization (5 items), Planning (5 items) and Motivation (4 items). Using a confirmatory factor analysis (CFA), the proposed factor structure was analyzed and adequate indices of fit were obtained, because the RMSEA value is *0.054*, which is considered an adequate fit, being lower than 0.06. In addition, the CFI and TLI values are *0.94* and *0.92* respectively, both values near 1, which is why they are considered adequate values. Finally, the indices of reliability of the proposed dimensions were examined using Cronbach's alpha, obtaining the following values: impulse control $\alpha = 0.78$, organization $\alpha = 0.72$, planning $\alpha = 0.73$ and motivation $\alpha = 0.80$.

Financial Well-Being Scale: This was developed by the Consumer Financial Protection Bureau (CFPB, 2015), and adapted for Chile in the Indebtedness Profiles Project among employees in Temuco (CEPEC, 2018). The Chilean version is composed of two subscales, Financial Control, with a Cronbach's alpha of .80 (5 items) and Financial Stress, with a Cronbach's alpha of .70 (4 items), on a 5-point Likert scale.

Plan of analysis

To achieve the study objective, descriptive and inferential techniques were used for the statistical analysis of the data. Then, to test hypotheses a path analysis was performed, using Model N°6 in the book by Hayes as the referential model (Hayes, 2018), and two theoretical multiple mediation models of the relationship between subjective financial knowledge and financial well-being are proposed, mediated by the financial executive function. The analyses were performed using the statistics programs JASP 10.10.03, IBM SPSS v. 25, and its extension/interface PROCESS v. 3.4.

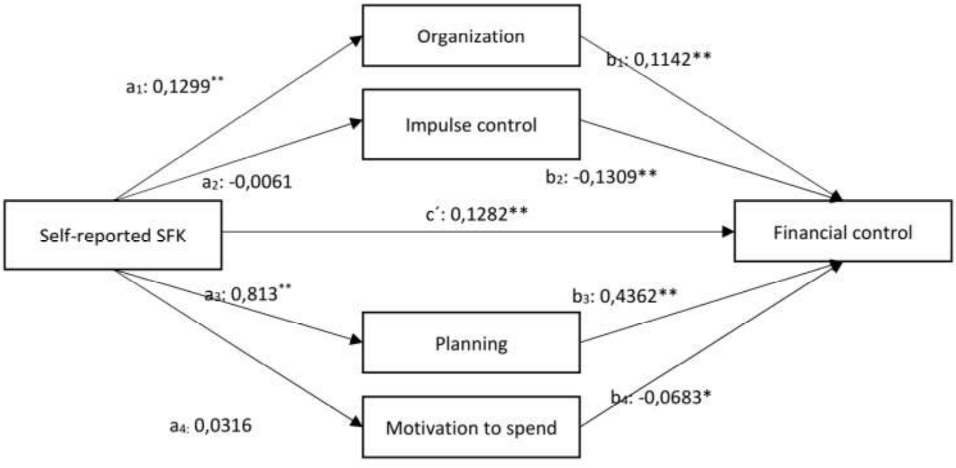
Results and discussion

In relation to descriptive statistics, the variable Subjective Financial Knowledge or self-confidence in one's financial knowledge (SFK) on a Likert scale from 1 to 7 presented a mean of 3.70 (SD = 1.37), which is lower than the midpoint of the scale.

On the other hand, the variable Financial Executive Function (FEF) grouped in dimensions that were measured on a scale from 1 to 5, the subscale "Organization" obtained a mean of 3.38 (SD = 0.95), "Impulse control" had a mean of 2.49 (SD = .53), "Planning 2.75 (SD = 0.75) and "Motivation to spend" 3.62 (SD = .99).

With respect to the financial well-being (scale from 1 to 5) subscales, a mean of 2.79 was reported (SD = .80) for financial control and 2.33 (SD = .82) for financial stress. To respond to hypothesis 1, Pearson's r correlation analysis was performed between SFK and the FWB subscale control, finding a statistically significant direct relation between low and moderate intensity (r = .32, p < .001). On the other hand, the correlation between SFK and the subscale FWB stress was not statistically significant (r = -.079, p = .063).

To test hypotheses 3 and 4, we used through a path analysis using Model 4 by Hayes (2018) (see *Figure 1* and *Figure 2*).

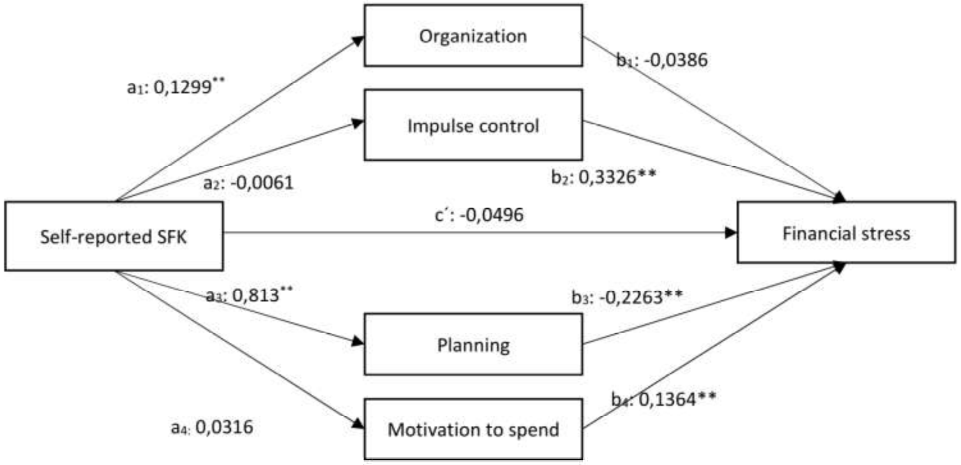


*Note: *p < 0.05; ** p < 0.01*

Figure 1. Multiple mediation model for financial control

According to Model 1, the direct effect of SFK on financial control was statistically significant β = .1894, *SE*= .0236, p < 0.01, 95% CI [0.1430 0.2358]. In agreement with this, SFK is directly associated with financial control. In addition, an indirect effect of the subscale organization of FEF on financial control was observed to be statistically significant β= .0253, *SE*= .0100, 95% CI [0.0078 0.0467]. Therefore, the dimension organization measures the relation between SFK and financial control of FWB. Moreover, there is evidence of an indirect effect of the subscale planning of FEF on financial control, which was statistically significant β= .0605, *SE*= .018; 95% CI [0.0255 0.0964]. However, there were no indirect effects of the subscale impulse control on financial control β= .0014, *SE*= .0053; 95% CI [-0.0093 0.0127]; in the same way, no indirect effect of the subscale motivation to spend was observed β= -.0037, *SE*= .0042; 95% CI [-0.0137 0.0031].

In relation to Model 2, the direct effect of SFK on financial stress was not statistically significant β = -.0496, *SE*= .0255, p < 0.519, 95% CI [-0.0996 0.0004]. Accordingly, confidence in one's financial knowledge was not directly associated with financial stress. However, an indirect and statistically significant effect of the planning sub-dimension of FEF was found on financial stress β= -.0307, *SE*= .0109 95% CI [-0.0541 -0.0118]. Consequently, total mediation of the variable planning was noted in the relation between SFK and EF. However, there were no indirect effects of the remaining dimensions of FEF. Impulse control β = -.0034, *SE*= .0124, 95% CI [-0.0284 0.0205]. Organization β = -.0084, *SE*= .0097, 95% CI [-0.0290 0.0092]. Motivation to spend β = .0072, *SE*= .0071, 95% CI [-0.0063 0.0219].



*Note: *p < 0.05; ** p < 0.01*

Figure 2. Multiple mediation model for financial stress

Conclusion

According to hypothesis 1, a low intensity association was found between SFK and the subscale control of FWB, corroborating the findings of Lind *et al.* (2020). This indicate that SFK contribute to financial well-being, then in future studies with other sample population it would be interesting to measure this relation and other possible variables that could mediate this relation.

According to hypothesis 2, there was no statistically significant association between SFK and financial stress. One explanation is that financial stress incorporates elements that go beyond financial knowledge and emerges from variables such as level of indebtedness and unhealthy financial practices, like spending exceeds income. This is the case of higher education students, who have a lower level of financial knowledge, and therefore, a greater distrust of their own financial skills and high levels of indebtedness (Denegri *et al.*, 2021; Duque *et al.*, 2016).

For hypothesis 3, it was found that financial organization and planning act as mediators between CCF and financial control. Therefore, the self-perception of confidence in one's financial knowledge activates mechanisms of personal organization, which positively influence financial control, which results in greater financial well-being (Spinella *et al.*, 2014). In addition, organization is a fundamental element for the implementation of healthy financial practices. Thus, two immediate benefits are gained: prioritization and control (Brüggen *et al.*, 2017).

According to hypothesis 4, a mediating role is noted of the planning dimension of financial executive functions in the relationship between CCF and subjective financial stress. This mediation implies that, when there is greater planning for spending, there is less subjective financial stress. Duarte *et al.* suggest (2014) the lack of suitable behavior in financial planning produces great anxiety or stress, as it becomes difficult to fulfill financial obligations. Thus, the increase in financial concerns could generate a significant increase in financial stress, and in this way negatively affect financial well-being (Brüggen *et al.*, 2017; Lind *et al.*, 2020).

Furthermore, the present results underscore the role of self-confidence in one's financial knowledge and its relationship with the perception of financial control as a dimension of financial well-being, which is consistent with previous findings linked to these factors as a foundation for the most careful money management (Cobb-Clark *et al.* 2016).

It is also important to indicate some limitations of this work. First, we used a nonrandom sample and, therefore, self-selection issues cannot be completely ruled out, nor is it possible to make statistical inferences on a large scale. Second, although this study controlled a series of variables associated with the participants' sociodemographic characteristics, there may be other factors connected to personality traits for which there was no information. In future studies, we suggest to developed longitudinal studies that can assess how the study variables appear once the students enter the working world and must take on financial responsibilities independently.

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