

## **Working in Argan Cooperatives is Associated with the Time Perspectives of Amazigh Women in the Moroccan Region of Souss-Massa**

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**Ethics Statement:** All procedures performed in this study were in accordance with the ethical standards of the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The tools used are based on simple self report scales and the participation in the study has zero risk involvement. Hence it was not mandatory in our institution to obtain the clearance from Institute Ethics Committee. A consent form for all participants was applied.

**Related Versions:** The project was presented at the 4th Conference on Time Perspective, August 27–31, 2018, Nantes, France, 2018. A short abstract entitled “*How working in Argan projects changes the social habitus of Amazigh women with regard to time perspectives*” was published in the booked abstracts (pp. 38-39, edited by Tianna T. Loose). No other previously published versions of this manuscript exist in part or in whole.

### **Abstract**

Only a few studies have examined time perspectives (TPs) in the domain of the workplace. The current study investigated how TPs differ between working and non-working Amazigh women in Argan cooperatives in Morocco. We hypothesized that the occupational status of working women will be associated with their TPs in a favorable way. The self-report questionnaire was administered orally ( $N = 100$ ) with a Tachelhit language version of the Zimbardo Time Perspective Inventory (ZTPI). We observed higher Future, higher Past-Positive, lower Fatalistic-Present and lower Deviation from a Balanced Time Perspective (DBTP) in working women. We were able to rule out the alternative association, that a specific TP-profile increases the probability of getting access into cooperatives or that age could be another alternative association that explain the results. The different TP-profiles reflect a more favorable personality and an improved socio-psychological situation of those women working in the cooperatives compared to non-working women.

**Keywords:** Zimbardo Time Perspective Inventory (ZTPI), Deviation from Balanced Time Perspective (DBTP), Argan cooperatives, occupational status, Amazigh women

Work does not only mean effort and strain, instead it is also purposeful and contributes to the development of the human – Kurt Lewin (1920)

### **The role of Argan cooperatives for Amazigh women**

Argan cooperatives in the Moroccan province of Souss-Massa and around the city of Essaouira are outstanding social, economic and environmental projects for Amazigh women (Perry et al., 2018). Members of this ethnic group make up approximately 40% of the Moroccan population (Becker, 2021). Argan cooperatives provide relatively stable jobs, ensure a fair income (El Fasskaoui et al., 2022, p.14) and weaken the rural exodus from this region, which is affected by drought (Charrouf & Guillaume, 2018). These cooperatives produce Argan oil, which is extracted from the kernels of the Argan tree (*Argania spinosa*).

Cooperatives belong to a specific type of economic form, which shows according to the International Co-operative Alliance (ICA) the following characteristics: “[...] a cooperative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.” (Zeuli & Cropp, 2004).

The Argan cooperatives give these women some degree of entrepreneurial independence (Omari & Elkandoussi, 2013, p. 116), resulting presumably in improved self-esteem, while also altering other psychological factors. Thus, the cooperatives can be viewed as a learning environment for the rights and values of solidarity and mutual aid (Perry et al., 2018). Amazigh women contribute to household expenses and are aware of the importance of educating their children, especially the girls (Faouzi, 2012; Laghssais & Comins-Mingol, 2021; Lybbert et al., 2010). However, apart from the national, as well as international reputation of these projects, the

situation of these women remains problematic (Montanari & Bergh, 2019). They have shortcomings in the management and marketing of products (Omari & Elkandoussi, 2013, p. 113). Cooperatives also suffer from a lack of balance between the tasks to be performed in the household and their mission within cooperatives (Drainville, 2001).

The cooperatives have a certain economic relevance for the region in delivering high-quality alimentation and cosmetic products for the Moroccan market but also increasingly for the exportation market (El Faskaoui, 2009; Lybbert et al., 2002). A reported economic shortcoming is the failure to meet delivery deadlines of the goods, which leads to customer dissatisfaction (Achour, 2018). The bulk sales of Argan products from some cooperatives is another problematic aspect (Elkandoussi & Omari, 2011, p. 276). Some cooperatives faced a scarcity of raw materials and a bad road infrastructure, which needed to be improved (El Bakkouri et al., 2018, p. 29; Omari, 2016a, Omari, 2016b).

The relatively high price can be attributed to the fact that the Argan tree can rarely be cultivated outside the provinces of Souss Massa and Essaouira. Besides the rarity of the Argan tree, there are other factors that explain the high price, such as the extraction yield of about 3 % compared to the fruits (Charrouf, 2002). In addition to the long extraction time, it takes an average of twenty hours to extract a single litre of Argan oil in an artisanal production (Charrouf, 2002, p. 3). Furthermore, cooperatives suffer from fluctuating raw material prices, because they do not have the ability to store a stock of it, unlike companies that buy this raw material in large quantities within the low seasons, which allows them to be more competitive (Omari & Elkandoussi, 2013).

Research on the psychological and social influence of the Argan cooperatives is very rare. We intent to fill this gap by examining the association of working in Argan cooperatives with the Time Perspective-profile of Amazigh women.

### **Time Perspectives**

Time perspectives (TPs) as conceptualized by Zimbardo and Boyd (1999) have been intensively examined in the last 20 years. They are an important predictor of different behaviour such as e.g. well-being (Drake et al., 2008; Stolarksi, 2016), motivational processes (Loose & Vasquez-Echeverría, 2021), decision-making (Zimbardo, 2006), anxiety proneness (Papastamatelou et al., 2015), severity of Posttraumatic Stress Disorder Symptoms (Papastamatelou et al, 2021; Zimbardo et al., 2012), and a proneness to problematic behavior, such as car racing (Zimbardo et al., 1997), compulsive buying (Unger et al., 2018), alcohol consumption (Loose et al., 2019) or drug abuse (Keough et al., 1999).

The conceptualization of the Zimbardo Time Perspective Inventory (ZTPI) implies the existence of five TPs (Zimbardo & Boyd, 1999), of which two of them are related to the past, two are related to the present and one is related to the future. The Past-Positive shows a positive reflection and interpretation of the past, including feelings of nostalgia. The Past-Negative is associated to a negative reflection and interpretation of the past. The Present-Hedonistic is related to the need for immediate gratification. The Present-Fatalistic perspective is associated with the belief that one's success or failure in life, depends on external powers, such as society and fate. Consequently, individuals who score high on this perspective deny their responsibility for their own behavior. The concept of the Future implies a persistent striving to achieve goals and it can be expected that the Future is related to a high self-control ability, high performance motivation and an ability toward a delay of gratification (Stolarski et al., 2011). Furthermore it

has been observed that women in particular can profit from thinking about the future, resulting in enhanced learning (Hilpert et al., 2014). Similarly Sircova et al. (2020) were able to show that the integration chances of immigrants highly depend on their imagination about the future. An overall-configuration of all of the TPs (Stolarski et al., 2011) indicates how much the individual TP deviated from an assumed optimal balance of TPs in terms of psychological functioning and well being. The Deviation from a Balanced Time Perspective (DBTP) is based on optimum values of each of the single TPs. To summarize it is expected that a low Past-Negative(1.95), a high Past-Positive(4.60), a moderate high Present-Hedonistic (3.90), a low Present-Fatalistic (1.50) and a high Future (4.00) can be expected as optimal. These optimum values are developed by theoretical considerations and empirical data (Zimbardo & Boyd, 2008). The DBTP is calculated by the following formula with o standing for the observed values and e for the expected optimal values for PN (= Past-Negative), PP (= Past-Positive), PF(= Present-Fatalistic), PH (= Present-Hedonistic) and F (= Future):

$$DBTP = \sqrt{(oPN - ePN)^2 + (oPP - ePP)^2 + (oPF - ePF)^2 + (oPH - ePH)^2 + (oF - eF)^2}$$

The ZTPI approach has been investigated across a wide range of different cultural settings (Sircova et al., 2014). TPs are stable trait-like constructs, which are subject to change and development over the long run (Sobol-Kwapinska et al., 2019), which is of high relevance to the current study: Beside a situational shift from one TP to another, long-term changes are expected and have already been observed in studies about altered TPs across the life-span (Mello & Worrel, 2006; Sobol-Kwapinska, et al., 2019; Wang et al., 2018). A study by Loose et al. (2021) recently demonstrated that the temporal focus of students can also be changed for longer periods as a consequence of the longer lasting COVID-19 pandemic. The situational shift (cf. Zajenkowski et al., 2016) can be illustrated in the following example: An individual can score

high on the Present Hedonistic dimension during a party, whereas the same person can score high on Future while working on a difficult task. Indeed, this pattern reflects a high ability for adapting a prevailing TP to the requirements of the corresponding situation. Zajenkowski et al. (2016) showed that fluid intelligence moderated the association between the ability to switch between the TPs (which is high in the case of a Balanced Time Perspective) and executive functioning. For the potential association of a person's working-status and their TPs the aspect of long-term adaptations are more relevant.

### **Derivation of the Hypotheses**

Depending on different factors and circumstances, work has been found to be a source of personal fulfillment (Wrzesniewski, 2003). The findings of an earlier study conducted by Bachman and O'Malley (1977) showed that occupational status is highly associated with self-esteem. Roberts et al. (2003) confirmed that being employed and working is related to the development and change of personality. Thus working can be a source of purpose and fulfillment as pronouncedly stated by Lewin (1920). More recent findings show that associations between personality changes and working status in women were observed for any ages (Roberts, 2006): Those women who are experiencing a higher self-efficacy due to their daily work and due to their independent financial status, could have a broader and more optimistic view into the future. We expect that this can in turn enhance their Future TP.

Their awareness of gaining money could lead them to think and decide on purchases for their household. Furthermore, they might also think about investing in education for their children. These thoughts could increase their planning activity with respect to the future. At the same time, money earned, would enable them to consume personal goods. Therefore, these

women could perceive themselves as more independent and the Present-Fatalistic TP would decrease. Therefore, we expect that women who work in Argan cooperatives will display a higher scoring on the Future TP, and a lower scoring on the Present-Fatalistic.

Furthermore, because of a higher general positive self-evaluation we can expect that the Past-Positive will be pronounced, due to a more positive and optimistic interpretation of the past. In contrast, the scoring on the Past-Negative will be decreased. For both past-related TPs, we hypothesize lower effects than for the Future and the Present-Fatalistic. It is important in this respect that fair working and payment conditions exist. For the Present-Hedonistic we do not expect differences: We expect that this dimension is less connected to potential association to working status because the life conditions of working and non-working women do not differ between both groups and are more or less based on traditional role-models of women in a rural environment.

Moreover, we expect that the Deviation from a Balanced Time Perspective (DBTP) will be lower, in working women when compared to their non-working counterparts. The concept of a Balanced Time Perspective (Boniwell et al., 2010) states that each TP has an optimum value for psychological functioning and well-being. The more the five TPs are in line with the optimum values, the more balanced is the overall TP configuration of an individual. According to both past related TP's (Past-Positive and Past Negative), we additionally hypothesize that women who work will show changes in perception and interpretation of their past: Here the work might enhance a past positive view and reduce a past negative view. To summarize we will test the following hypotheses:



Working in the Argan cooperatives will co-vary (a) with higher Past-Positive (b) with lower Past-Negative (c) with lower Present-Fatalistic (d) with higher Future and (e) with a lower Deviation from a Balanced Time Perspective (DNTP).

The study was not pre-registered. Thus following the requirements of the journal the hypotheses a), b.), c.), d.), and e.) were defined as exploratory hypotheses.

## **Methods**

### **Procedures and participants**

It has to be considered that women working in Argan cooperatives usually have a low formal educational background and are illiterates. Thus, the use of questionnaires in Neo-Tifinagh, which is an alphabet based on the conveyed writing system of the Tuareg (Ait-Ali & Sedtrati, 2016), or of another written form such as Standard Arabic or French was excluded from the outset. Although the population of Morocco is characterized by many regions with a “mixed” Amazigh and Arabic population, which can be found, in particular, in important cities like Casablanca, Tangier, or even Marrakesh (cf. Boukous, 1995), several rural areas are typically characterizable as genuine Amazigh regions including large rural parts of Souss-Massa. In the current study the data-collection was conducted in villages in the Tiznit region (belonging to Souss-Massa).

Tamazight is widely spoken as the mother tongue of the populations of this part of Morocco (El Aissati, 2013). Thus one efficient control mechanism in the current study is also the fact that the Tamazight version of Tachelhit - as used in the current study - can only be spoken by Amazigh and only among those living in particular regions including the Souss-Massa region (El Ouahabi et al., 2019).

We defined the sample-size by expecting a "medium to strong" effect size of the occupational status of the women. For this purpose we applied the G-Power program for the ANOVA omnibus test (Faul et al., 2009) with  $f = 0.35$ , Power ( $1 - \beta$  err prop) = .95 and number of groups = 2, resulting in a required sample-size of  $n = 110$ . Although there are strong theoretical arguments that the influence of the occupational status on TPs might indeed have a strong effect size, no empirical data on the association of occupational status and TPs were yet available from the literature. Thus, we expected a higher effect-size and tested with a lower sample-size, in order to interpret either an observed low or a high effect size as valid.

The working women were recruited for their participation in the study at several cooperatives located in the same village. They were ensured that their responses will be strictly anonymous and for scientific purposes only. Their voluntary participation was emphasized and consent was asked from the beginning. Only a few stated that they had no time and refused to participate (approximately the same amount as in the non-working group). The non-working group was recruited from the same village. For this purpose, we contacted some of the small non-commercial women's associations in this village. These are informal groups in which women meet to socialize. As criteria for their inclusion, it was ensured that they do not work in any Argan cooperatives, nor did they work in any in the past, and they had not worked in any other company or business. The socio-economic status, the (low) formal education, and the ethnic-cultural background of working and non-working women was the same, because the Argan cooperatives concept was created exactly for this group of women, who are otherwise housewives.

The self-report questionnaire was administered orally, based on a translated Tachelhit version of the ZTPI, to an overall sample of  $n = 100$  women ( $M_{AGE} = 36.9$  years,  $SD = 10.9$ ).

Fifty of these women were working in the cooperatives and fifty women were not employed at all, but they all live in the same village and show the same educational and socio-demographic background. Both groups did not differ significantly in their age ( $M_{\text{WORKING}} = 37.9, SD = 10.5$  vs.  $M_{\text{NON-WORKING}} = 35.8, SD = 11.1, p = .333$ ). We have used the back-translation method from Standard Arabic to Tachelhit<sup>1</sup>. As a source, we have used the Standard Arabic version of the ZTPI by Djarallah and Seghir Chorfi (2009). Every steps of the translation process was discussed in detail by four bilingual (Standard Arabic and Tachelhit) co-workers of a Moroccan University who were familiar with the concept of the ZTPI. The verbal interview version of the standardized items was held in Tachelhit, which is the spoken version of Tamazight in the region of Souss-Massa<sup>2</sup>. In each interview session the interviewer explained the response format of the ZTPI, ranging from 1 (*very untrue*) to 5 (*very true*). We have also measured the working experience of the women in years.

All of the interviews were conducted by a native Tachelhit female speaker who was well acquainted with the local circumstances and conditions. The interviews were conducted in a standardized way and several training sessions were simulated before the data-collection started.

## Data analysis section

Throughout all of the analysis *p*-values were reported for the two-tailed tests. First we calculated the correlational pattern between the five TPs. Second we conducted ANOVAs with working status as a factor on all five of the TPs and on DBTP. We also controlled for the possible confounding influence of age. For this purpose we repeated the ANOVA including age

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1 Tachelhit (language code: ISO 639-3shi) is one of three main versions or dialects of Amazigh language in Morocco. Synonym names in English are Shilha, Tashelhiyt or Tashelhit. The term Amazigh language or Tamazight refers instead as an umbrella term to all of the Amazigh languages of North-Africa.

2 An audio-file of the verbalized 56 items of the ZTPI in the Tachelhit language can be requested by interested researchers. Requests should be sent to the authors by e-mail.

as a covariate. To interpret the effect sizes of the tested associations in the ANOVA's we refer to the conventional cut-off values of the partial eta squared, which are  $\eta^2_p \geq .01$  as small;  $\eta^2_p \geq .06$  as middle and  $\eta^2_p \geq .14$  as large (Rafieyan et al., 2014, p. 212). Next we analyzed the association between the work experience and the TPs among the group of working woman only. Whilst it cannot be concluded that the hypothesized positive effects on the TPs are fully, or partly, caused by the length of the participants' work experience, if the differences can also be observed between those women with low work duration and those with a longer work duration, it can, at least be precluded that the differences are not due to more favorable TPs from the onset of those women who successfully applied for a working position in an Argan cooperative. We expected that the work experience will co-vary with higher Past-Positive and Future whereas a longer work experience will co-vary a lower Past-Negative and Present-Fatalistic. The Present-Hedonistic was analyzed again in an exploratory manner. For the purpose of analyzing the potential co-variation of the work experience and the TPs, we conducted linear regressions. Again, we repeated all of the linear regressions by including age as an additional factor to control for the potential confounding role of age. For interpreting the effect sizes of the tested associations in the linear regressions we refer to the conventional cut-off values of Cohen's  $f^2$ , which are  $f^2 \geq 0.02$  as small;  $f^2 \geq 0.15$  as middle; and  $f^2 \geq 0.35$  as large effect sizes (Cohen, 1988).

## Results

The observed correlational pattern between the five TPs is provided in Table 1.

**Table 1.** Means, standard deviation and Pearson correlation matrix for the five time perspectives of the Zimbardo Time Perspective Inventory; ZTPI ( $n = 100$ )

|                       | M    | SD  | 1      | 2    | 3     | 4    | 5 |
|-----------------------|------|-----|--------|------|-------|------|---|
| 1. Future             | 3.58 | .46 | –      |      |       |      |   |
| 2. Present Fatalistic | 3.46 | .47 | -.54** | –    |       |      |   |
| 3. Present Hedonistic | 3.69 | .24 | -.12   | .20* | –     |      |   |
| 4. Past Positive      | 3.63 | .44 | .08    | .09  | .11   | –    |   |
| 5. Past Negative      | 3.44 | .41 | -.18*  | .17  | .37** | .21* | – |

Note. \* $p < .05$ ; \*\* $p < .001$ .

The conducted ANOVA revealed the following observations: For Future we observed a significant effect of working status;  $F(1,98) = 19.91$ ;  $p < .001$ ,  $\eta^2_p = .169$ . The women who work in the cooperatives showed a higher Future ( $M_{\text{working}} = 3.77$ ;  $SD = 0.48$  vs.  $M_{\text{non-working}} = 3.39$ ;  $SD = 0.35$ ). Further, for the Present-Fatalistic the ANOVA revealed a significant effect in the opposite direction;  $F(1,98) = 8.99$ ;  $p = .003$ ,  $\eta^2_p = .084$ . The Present-Fatalistic was lower for the women who work ( $M_{\text{working}} = 3.33$ ;  $SD = 0.42$  vs.  $M_{\text{non-working}} = 3.60$ ;  $SD = 0.48$ ). The results for the two past-related TPs were non-significant: The main effect on the Past-Negative only showed a trend in the expected direction;  $F(1,98) = 2.83$ ;  $p = .096$ ,  $\eta^2_p = .028$  with lower scoring for working woman ( $M_{\text{working}} = 3.37$ ;  $SD = 0.39$  vs.  $M_{\text{non-working}} = 3.51$ ;  $SD = 0.43$ ). The ANOVA for the Past-Positive showed no significant effect;  $F(1,98) = 0.33$ ;  $p = .568$ ,  $\eta^2_p = .003$  ( $M_{\text{working}} = 3.65$ ;  $SD = 0.42$  vs.  $M_{\text{non-working}} = 3.60$ ;  $SD = 0.47$ ). Finally, the exploratory analysis of the influence of the work status on the Present-Hedonistic also showed no significant effect;  $F(1,98) = 0.01$ ;  $p$

= .914,  $\eta^2_p = .000$  ( $M_{\text{working}} = 3.69$ ;  $SD = 0.27$  vs.  $M_{\text{non-working}} = 3.68$ ;  $SD = 0.21$ ). According to the influence on the DBTP we observed, that the deviation was significantly reduced;  $F(1,98) = 12.33$ ;  $p = .001$ ,  $\eta^2_p = .112$  ( $M_{\text{working}} = 2.65$ ;  $SD = 0.39$  vs.  $M_{\text{non-working}} = 2.96$ ;  $SD = 0.51$ ). When including age as a covariate into the ANOVA we observed the same significant effects<sup>3</sup> indicating that the association between work status and TPs is not confounded with age.

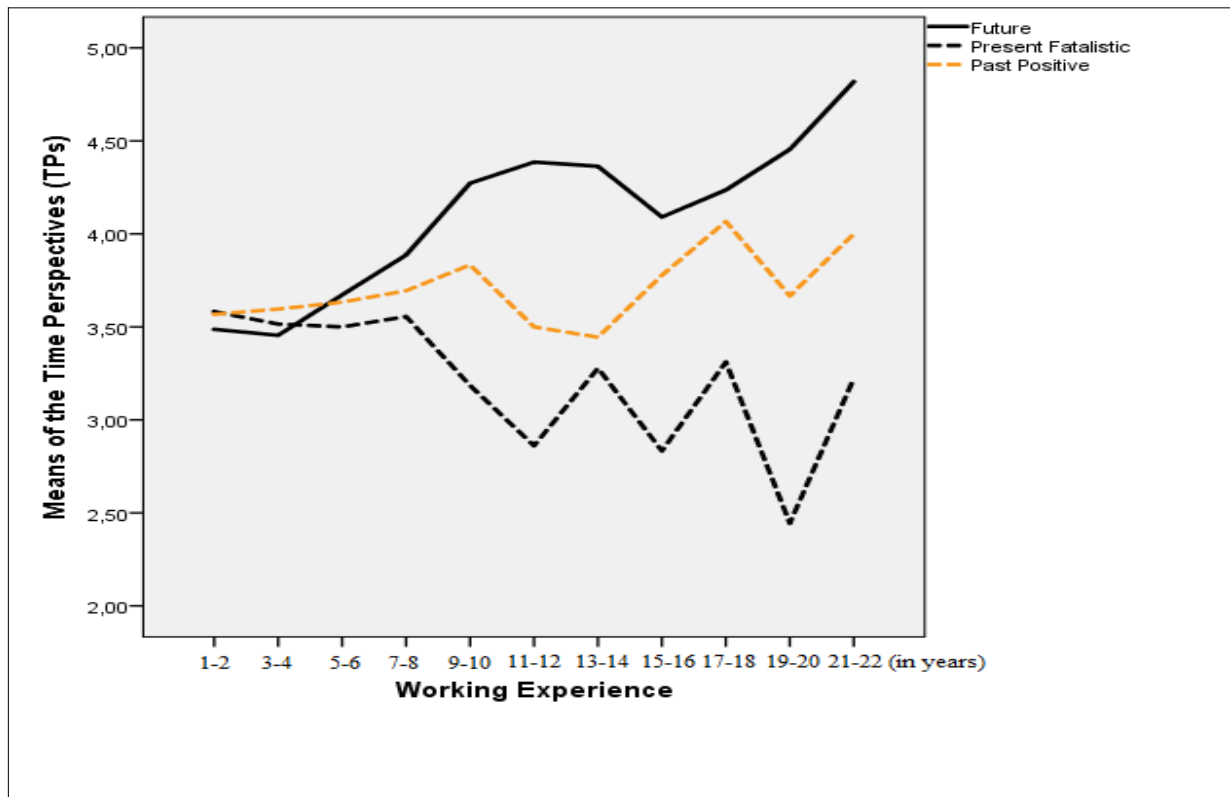
Next, we will report the conducted linear regressions. We observed a higher Future;  $\beta = .70$ ,  $t(48) = 6.77$ ,  $p < .001$ ,  $f^2 = .916$  and a higher Past-Positive;  $\beta = .38$ ,  $t(48) = 2.81$ ,  $p = .007$ ,  $f^2 = .164$  with a longer experience of working. We also observed that the Present-Fatalistic was significantly lower co-varying with the duration of work in the cooperatives;  $\beta = -.39$ ,  $t(48) = -2.94$ ,  $p = .005$ ,  $f^2 = .179$ . Contrary to our hypotheses, the Present-Negative remained stable;  $\beta = .01$ ,  $t(48) = 0.06$ ,  $p = .956$ ,  $f^2 = .001$ .

Finally, there was also no co-variation of the Present-Hedonistic;  $\beta = -.05$ ,  $t(48) = -0.25$ ,  $p = .710$ ,  $f^2 = .003$  by work experience. The three significant co-variations of work experience (collapsed into steps of two years) with Past-Positive, Present-Fatalistic, and Future being illustrated in Figure 1.

We also tested the association of work experience with the DBTP. The DBTP was significantly lower for those women with a longer work experience;  $\beta = -.49$ ,  $t(48) = -3.91$ ,  $p < .001$ ,  $f^2 = .319$ . To rule out a confounding role of age for the association of work experience with Past-Positive, Present-Fatalistic, Future, and DBTP, we repeated these linear regressions with age *and* work experience as factors.

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3 The results of the repeated ANOVA were as following: On Future the effect of work status was again significant,  $F(1,97) = 19.11$ ;  $p < .001$ ,  $\eta^2_p = .165$ . Also the effects on Present-Fatalistic,  $F(1,97) = 8.35$ ;  $p = .005$ ,  $\eta^2_p = .079$ , and on DNTP,  $F(1,97) = 11.45$ ;  $p = .001$ ,  $\eta^2_p = .106$  reached significance. All of the other effects (all  $p$ 's  $> .108$ ) and the covariate age (all  $p$ 's  $> .223$ ) were not significant.



**Figure 1.** The association of the work experience in years with the Future, Present Fatalistic, and Past-Positive TPs.

The effect of work experience remained significant for Past-Positive, ( $\beta = .43$ ,  $t(47) = 2.93$ ,  $p = .005$ ,  $f^2 = .182$ ), Present-Fatalistic ( $\beta = -.41$ ,  $t(47) = -2.76$ ,  $p = .008$ ,  $f^2 = .163$ ), Future ( $\beta = .73$ ,  $t(47) = 6.45$ ,  $p < .001$ ,  $f^2 = .883$ ) and DBTP ( $\beta = -.55$ ,  $t(47) = -3.97$ ,  $p < .001$ ,  $f^2 = .251$ ). The effect of age did not show any significant co-variation with any of the five TPs or the DBTP (all  $p$ 's  $> .699$ ).

## Discussion and conclusions

We observed an association between work status and TPs in the expected direction. In particular, the scoring on the Present-Fatalistic and on the DBTP were lower among those women who work in cooperatives, whereas the scoring on the Future was higher compared to the non-working women. The more favorable TP patterns indicated by higher Future ( $\eta^2_p = .169$ ), lower Present-Fatalistic ( $\eta^2_p = .084$ ), and lower DBTP ( $\eta^2_p = .112$ ) emphasize the strong association between the working environment of the Argan co-operations and the socio-psychological situation of Amazigh women. According to effect sizes, the observed  $\eta^2_p$ -values were beside the strong effect of Future, however, smaller than expected. Thus our already relatively small sample-size implies the risk of over estimating the possible effects of work status on TPs, because as reported by Slavin and Smith (2008) small sample sizes correlates with larger effect sizes (cf. also for further considerations Levine et al., 2009). This can be considered in future studies by using different sample sizes for retesting our observations.

We did not explicitly formulate any hypothesis about an association between work status and Present-Hedonistic. Our explanation refers to the relatively traditional role-model of all working and non-working women of our sample. This can be contrasted to other women, who move for work, career, studying, and related reasons to Moroccan cities and thus might presumably be more influenced by western and modern life styles, which could also be related to enhanced present-hedonistic orientations. Thus, there were no reasons to expect differences of both subsamples. The absence of a significant association between Past-Negative and work status reflects the degree to which the women were tied down by a Past-Negative TP is less connected to their work status as in the case for Past-Positive, Present-Fatalistic, and Future.



Both samples were from the same socio-economic, as well as cultural-ethnic background. However, there is an important limitation, which concerns the possibility that the TPs were not co-varying with the work conditions of the Argan cooperatives. Instead, it could be the case that those women with more favorable TPs, such as higher Future and lower Present-Fatalistic are more successful in founding an Argan cooperative or in joining in an existing one. The ones with a higher score on the Future could be more persistent and therefore more successful in integrating into the cooperatives. For example they could have also decided to get involved by themselves without waiting for the agreement of their family members. Due to the outlined limitation, we conducted an additional analysis by only using the subsample of the work women. We tested if the factor *work duration* will also co-vary with the Deviation from a Balanced Time Perspective (DBTP) and the single TPs in the expected favorable way. These co-variations of TPs and work experience in years were also observed in the subsample. Based on the conventional cut-off threshold values for Cohen's  $f^2$  of interpreting  $\geq 0.02$  as small  $\geq 0.15$  as middle, and  $\geq 0.35$  as large effect sizes we can conclude that the association of the work experience in years with Future and with DBTP have to be interpreted as a strong association, whereas the ones with Present-Fatalistic and Past-Positive has to be interpreted as medium strength associations. No co-variations were found between years of working and Present-Hedonistic, and, contrary to our hypothesis also not between years of working and Past-Negative. In summary, the duration of work experience in the cooperatives co-varies with more favorable TPs. Moreover, our analysis on the association of the TPs with the length of work experience, showed that the observed results cannot be attributed to previously different TPs of those who succeeded in getting a job in the cooperatives. However, more research is needed to identify the underlying mechanisms of these processes. Another alternative association of the

observed TPs with age was also ruled out by controlling for age in the ANOVA and the linear regressions.

By putting aside the still not clarified open questions of causality, which still need to be tested in future studies, in general, our results can be taken as an argument for the potential positive psychological effects on the TP's of those women, who work in the Argan cooperatives. In contrast, our results cannot substitute an analysis of the social or economic aspects of Argan cooperatives in Morocco. To summarize, our study delivered correlational patterns that seem to underpin the positive effects of these projects, but we would highly question that the same or similar results can be observed in the case of an Argan cooperative with negative working conditions. In contrast to the positive evaluations by El Fasskaoui et al., (2022), a critical evaluation according to social conditions is delivered by Perry (2020), who came to the conclusion "[that] this impact evaluation of the booming argan enterprise weighs the social benefits and costs of a transnational push that prioritizes economic growth over social sustainability". These diverging evaluations emphasizes the need for a differentiated analysis of every factor. Presumably there is a high variability of social orientations and social sustainability among the variety of Moroccan Argan cooperatives. For the research about psychological factors as TPs or others associated with the working environment. this suggests follow-up studies should be conducted, including a variety of Argan cooperatives differing in their working environments (e.g. including "good" and "bad" cases).

In the following section, we would like to consider some important shortcomings of the current study and suggest some future research directions to overcome these shortcoming . Although our results can be best explained by the assumption that the status of working directionally changed the TPs, it is evident that the cross-sectional design cannot prove or test

this assumption. More research is needed to scrutinize and test our assumption that working in Argan cooperatives alters TPs including the overall configuration of the Deviation from a Balanced Timer Perspective (DBTP). Our study only confirms that working status and working time in the Argan cooperatives is associated with specific TPs and with DBTP. For those future research directions, the following two approaches might be mostly helpful: First longitudinal studies can deliver valuable information about how TPs changes over different latitudes of work. In this context, it is important to control for potential disturbance variables. Another approach might be a combination of follow up studies combining the use of the standardized oral ZTPI version with semi-structured in-depth interviews with Amazigh women working in cooperatives. Another important aspect is that the current study does not enable a proper testing of the psychometric properties of the translated ZTPI due to the relatively low sample size of  $n=100$ . According L.K. Muthén and B.O. Muthén (2002) even for a simple CFA the requested minimum sample size is  $n=150$ . The minimum sample sizes increases however with the number of latent variables (Wolf et al., 2013). In example Kline (2005) argues that about 100 cases should be collected for each assumed factor resulting in an approximate minimum sample size of  $n=500$  in the case of the five-factorial structure of ZTPI (cf. for similar or higher sample sizes recommendations Kim & Yoon, 2011; Shi, et al., 2021). We highly encourage fellow-up studies with higher sample sizes of corresponding Amazigh versions as the one used in the current study. But these suggested Confirmatory Factor Analysis are also important, because scalecross-validating studies for the Tamazight language are impossible to process, , because of the lack of any other validated scales.

Further Longitudinal studies might be helpful to further analyze the observed beneficial effects on disadvantaged groups, when working under good working-conditions including having autonomy and responsibility.

Although, as described, we ensured that both compared groups widely shared the same socio-demographic background, there might, however, have been some differences arising from the reasons and motivations for why these women work or do not work in the Argan cooperatives: In general, women who do work in the cooperatives might have one of the followings reasons: 1.) they are women who are motivated to have an income and be more financially independent, 2.) some are widows or divorced women who are in a poor financial situation, or 3.) some of the older women are motivated to pass on their know-how to other women. In contrast, the reasons for not working in the cooperatives might be one of the following: 1.) the husband does not allow their wives to join the cooperatives, 2.) a good financial situation of their families, 3.) a lack of time in the case of younger women who need to care for their children, and 4.) young women who intend on leaving their village. The last three groups of non-working women were typically not presented (much) in the non-commercial informal association where the non-working women were recruited for participation in the current study. However, a confounding factor might be that those TPs of women with husbands that do not allow them to work, may differ substantially compared to the TPs of those who are allowed to work, because of a differing quality of partnership and family life. Future research should measure this aspect together with the other background variables.

The multilingual language situation in Morocco (Unger et al, 2018) should also be considered. In the concrete case of the illiterate female samples, we can, however, expect that they are not multilingual at all: They do not speak Standard Arabic and French. Even their skills

in Darija has to be evaluated as very limited. Future research should also be aware of the fact that at least three versions of verbal Tamazight are being spoken in Morocco, as outlined by El Ouahabi et al. (2019, p. 422): "Amazigh speakers in Morocco are divided into three big regional varieties: The Tarifit in Northern Morocco, Tamazight in the Center, and Tachelhit in the South-west and the High Atlas of the country." This requires that the adequate version should be chosen depending on the geographical location of data-collection, as Tachelhit was used in the current study. Those studies can test for the generalizability of the current observation and reveal how other variables are involved in the association to TPs.

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